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THE SURVEY



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No. 1

GENERAL NOTES

Addresses Canadian Conference.---Chief Gabrielson spoke on "The United States and the Conservation of Wildlife" at the Provincial-Dominion Wildlife Conference in Ottawa, Canada, on January 5. Game officials in attendance appeared greatly interested in the Chief's explanation of the Survey's wildlife restoration program. On January 4, Dr. Gabrielson attended a meeting of the Montreal Canadian Club. On December 18, he visited waterfowl areas on Bloodsworth Island, Billys Island, and Bishops Head, on the eastern shore of Maryland. He was accompanied by Col. Albanus Phillips, who maintains a waterfowl sanctuary on Bloodsworth Island, and by E. Lee LeCompte, State Game Warden of Maryland.

Associate Chief Visits Refuges.---Mr. Henderson left Washington on January 8, for Minot, N. Dak., where he conferred with Burnie Maurek and M. O. Steen on the progress of the Bureau's projects in North and South Dakota. He inspected the work that is under way at the Upper Souris, Lower Souris, Des Lacs, and Medicine Lake Migratory Waterfowl Refuges. On his return trip Mr. Henderson stopped at St. Paul, Minn., and conferred with Dr. R. G. Green of the University of Minnesota, E. V. Willard, director of conservation for Minnesota, and S. E. Aldous, in charge of the Bureau's work at the Lake States Forest Experiment Station. He returned to Washington on January 20.

Wildlife Conference Date Set.---The second annual North American Wildlife Conference will be held at St. Louis, Mo., March 1 to 4. Former Senator Frederic C. Walcott, of Connecticut, will be chairman. Several members of the Bureau will take part, and plans for showing a Survey wildlife exhibit are being made. The Survey and other Governmental agencies interested in wildlife were well represented at the first conference held last year at Washington, D. C.

Senator Norbeck Dies.---Senator Peter Norbeck, 66, a member of the Special Senate Committee on Conservation of Wildlife Resources, and the Migratory Bird Conservation Commission, died at his home at Redfield, S. Dak., December 20, after a long illness. He had undergone an operation last March.

Senator Norbeck, who was serving his third consecutive term in the U. S. Senate when his health began to fail, was a constant advocate of wildlife conservation, and his efforts did much to advance the wildlife program. He was joint author of the Norbeck-Andresen bill, which on February 18, 1929, became the Migratory Bird Conservation Act. He was the

first member appointed by the Senate on the Migratory Bird Conservation Commission. As a member of this Commission he was active in furthering proposals for the establishment of wildlife refuges. His successor on the Commission is yet to be appointed.

Mr. Norbeck was also interested in wildlife conservation in Alaska, and introduced the bill in the U. S. Senate, which in 1925 became the Alaska Game Law. He was the first native of South Dakota to serve as its Governor and Senator.

Dr. Coville Dies.---The death on January 9 of Dr. Frederick Vernon Coville, of the Bureau of Plant Industry, revives interest in the revelations concerning Death Valley, Calif., first made known through the Death Valley Expedition, of which he was a member. Prior to this first biological survey of the area in 1891, the popular impression was that life was virtually nonexistent there. Yet the present list of species includes nearly 530 varieties of plants and more than 130 different kinds of birds in the section below sea level alone.

To make the survey Dr. Coville was temporarily detailed from the Division of Botany of the Department of Agriculture, to the Division of Ornithology and Mammalogy, which later became the Biological Survey. His "Botany of the Death Valley Expedition" was published November 29, 1893, by the Department as volume 4 of "Contributions from the U. S. National Herbarium." At the time of his death, Dr. Coville was working on a revision of his early Death Valley flora and was looking forward to a visit to that region during the coming spring-flowering season.

Many Manuscripts Abstracted.---Mr. McAtee reports that the first 7 issues of Wildlife Review (September 1935-December 1936) contained abstracts of 627 manuscripts by 388 different authors, and that consolidated author and subject indexes have been prepared. Included also in these issues were 8 special articles, 4 bibliographies, and 40 items under the heading of "Notes and News." A total of 2,300 copies of the December 1936 issue (No. 7) were distributed.

Aid in Flood Disaster.---By February 1, approximately 60 members of the Survey in the Washington office had contributed a total of \$96.75 to the American Red Cross for the relief of flood sufferers in the Ohio and Mississippi River valleys. Miss Johanna H. Corsack, of the Division of Administration, has been named to receive contributions from Bureau employees.

ADMINISTRATION

Memoranda to Field Offices Issued.---The following memoranda to field offices have been issued in the "Administrative Field Office" (Admin. F. O.) series:

- No. 136. Cooperation in wildlife census studies. (December 9.)
- No. 137. Procurement of antiskid tire chains for the period December 1, 1936, to June 30, 1937. (December 10.)

- No. 138. Copy of Executive Order issued by the President on November 27, 1936, excusing Federal employees from duty on December 24, and 26, 1936 and January 2, 1937. (December 12.)
- No. 139. Cooperation with the Post Office Department. (December 14.)
- No. 140. Submission of property returns for calendar year 1936. (December 18.)
- No. 100. Amendment No. 3. (December 21.)
- No. 141. Submission of December overtime reports. (December 22.)
- No. 142. Stating of individuals' names on vouchers and rolls. (December 31.)
- No. 143. Reports of quarters occupied by employees. (January 4.)
- No. 144. Changes in Procurement Division contracts. (January 4.)

Transfers.---Miss Evelyn Perkins was transferred January 1, from the personnel office of the Bureau to the Soil Conservation Service with headquarters at Spokane, Wash. Miss Mary Squires was transferred from the Secretary's Office to fill Miss Perkins's position.

PUBLIC RELATIONS

Plan Survey Exhibit at Sportsmen's Show in Toledo.---Plans are under way for conducting a Biological Survey exhibit at the Great Lakes Sportsmen's and Motor Boat Show to be held in Toledo, Ohio, February 11 to 20. Sponsored by the Maumee River Restocking Association, Inc., the show has been endorsed by the City Council as part of Toledo's centennial celebration and will be held in the Civic Auditorium. During the time of the show Toledo will also be the scene of more than a dozen conventions of Ohio sportsmen's and conservation organizations, and it has been estimated that 7,500 delegates and members of these organizations will be in Toledo then. The Survey exhibit, it is planned, will consist of two sets on fur animals, and one each on upland game birds, the Canada goose, and shorebirds.

Survey Edition of Wildlife Conference Proceedings.---The Biological Survey edition of the Proceedings of the North American Wildlife Conference, held in Washington February 3-7, 1936, reached the Bureau on December 29. This edition, unlike that issued by the Special Committee of the Senate on Conservation of Wildlife Resources, contains 77 plates illustrating various phases of wildlife, wildlife habitat, and methods of conserving, restoring, and increasing the various species. In addition three preliminary pages (XIII-XV) list these plates with page references, the next page outlines the conference background, and the book is bound in buckram. Attempt has been made in the distribution of this edition to furnish copies to all connected with the conference, including Federal, State, Canadian, and Mexican officials. In order that the various articles appearing in the book may have wider dissemination among specialists in the different fields than would be possible with the limited free edition of the bound proceedings, arrangements are being made to supply authors and interested organizations with separate reprints sufficient to meet their needs. The correspondence and other planning for the reprints, including arrangements for quantity purchases where desired, are being handled by W. L. McAtee,

technical adviser, Office of the Chief, in cooperation with the Editorial Office of the Bureau. In addition to the illustrations furnished by the Survey are several from the Forest Service, and the Wisconsin Conservation Commission, and one, of the extinct heath hen, by Dr. A. O. Gross, of Bowdoin College, Brunswick, Maine. Copies of the book may be obtained at \$1.50 each from the Superintendent of Documents, Washington, D. C.

Miss Jett Retires.--After 28 years of employment in the Federal Government, Miss Ethel N. Jett, clerk-stenographer in the Section of Current and Visual Information, was honored upon her retirement by her associates in the Survey at a gathering in the office of the Chief on January 8. Tribute to Miss Jett was paid by Associate Chief Henderson, who pointed out that her work and loyal devotion to the Bureau had played an important part in its growth and accomplishments. Following Mr. Henderson's talk, Miss Jett's associates presented her a pocketbook containing a sum of money, with part of which, it has been learned, she purchased luggage for use on a motor trip she planned to Florida.

Miss Jett joined the Bureau in 1920 as a stenographer in the Office of Accounts. In 1921 she became connected with the Division of Game and Bird Conservation. Seven years later she transferred to the Office of Exhibits and Publications, which later became the Section of Current and Visual Information. In this Section Miss Jett was particularly active in building up the Bureau's collection of photographs. Prior to joining the Survey, she was employed in the library of the Forest Service, from 1908 to 1920. She is a native of King George County, Va.

Cites Wildlife Needs.--How the Biological Survey is meeting the needs for wildlife habitat was explained by Howard Zahniser in the Conservation Day program broadcast during the National Farm and Home Hour, January 8. Research and regulated hunting are essential to a wildlife restoration program, but these two, he pointed out, will produce disappointing results if the wild species do not have adequate areas on which to breed and feed and find safety. Development of the Federal refuge system will be explained by Mr. Zahniser in forthcoming broadcasts. On December 18, he discussed on the same program the accomplishments of the cooperative research program under way at nine land-grant colleges.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

Poisonous snakes of the United States. Prepared in the Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-70, 19 pp. Nov. 1936. Received Dec. 10.

Inheritance of "woolly" in rabbits. By A. W. Bellamy, Department of Biological Sciences, University of California at Los Angeles, in cooperation with the Bureau of Biological Survey and the Agricultural Experiment Station of the University of California. Mimeographed Leaflet BS-73, 4 pp. Dec. 1936. Received Jan. 7, 1937.

- Nail keg nest box. By George S. Templeton, Director, U. S. Rabbit Experiment Station, Section of Fur Resources, Division of Wildlife Research. Mimeographed Leaflet BS-74, 2 pp. Dec. 1936. Received Dec. 23.
- Raising otters in captivity. Prepared in the Section of Fur Resources. Division of Wildlife Research. Mimeographed Leaflet BS-75, 2 pp. Dec. 1936. Received Dec. 21.
- Annual Report of the Migratory Bird Conservation Commission for 1936. House Document 107, 9 pp. Received Jan. 18, 1937.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Bennett, L. J. Duck nesting carrying capacities in Iowa. North Amer. Wildlife Conf. Proc., 1936. pp. 494-498.
- Cooperative game management plans in Iowa. North Amer. Wildlife Conf. Proc., 1936. pp. 290-293.
- Bourn, W. S. Mosquito control and waterfowl. North Amer. Wildlife Conf. Proc., 1936. pp. 505-508.
- Cottam, C. Food habits of North American diving ducks. Bull. George Washington University, 1936. pp. 66-70.
- (With Harrison F. Lewis, Chief Federal Migratory Bird Officer of Ontario and Quebec, senior author.) Eelgrass and other waterfowl foods--present status and future prospects. North Amer. Wildlife Conf. Proc., 1936. pp. 498-500.
- Gabrielson, I. N. A national program for wildlife restoration. North Amer. Wildlife Conf. Proc., 1936. pp. 209-217.
- Goldman, E. A. Two new flying squirrels from Mexico. Jour. Wash. Acad. Sci. 26: 462-464. Nov. 15, 1936.
- Bird refuges in the United States. World Today 4 (2): 3-7. Dec. 1936.
- Handley, C. O. Want more partridges? Tenneva Field Trial Bull., pp. 15-17, illus. Oct. 1936.
- Kubichek, W. F. The C.C.C. rehabilitates waterfowl habitat. North Amer. Wildlife Conf. Proc., 1936. pp. 615-618.
- Lincoln, F. C. Waterfowl populations. North Amer. Wildlife Conf. Proc., 1936. pp. 509-516.
- The effect of oil pollution on waterfowl. North Amer. Wildlife Conf. Proc., 1936. pp. 555-559.
- McAtee, W. L. Forests and wildlife. Penn. Game News 7 (9): 6-8, illus. Dec. 1936.
- Manuel on Cabanis's weaver. [Canuto G. Manuel, Life history and economic importance of Cabanis's weaver, Philippine Jour. Sci. 58: 193-210, Oct. 1935.] (Review). Auk 54: 110. Jan. 1937.
- Miller, J. P. A report on the Pillsbury, New Hampshire, game management project. North Amer. Wildlife Conf. Proc., 1936. pp. 360-365.
- Morley, L. C., and Wetmore, P. W. Discovery of the organism of ulcerative enteritis. North Amer. Wildlife Conf. Proc., 1936. pp. 471-473.
- Oberholser, H. C. The season (ornithological): Washington (D. C.) region. Bird-Lore 38: 386-387. Sept./Oct. 1936.
- The season (ornithological): Washington (D. C.) region. Bird-Lore 38: 467. Nov./Dec. 1936.

- Peters, H. S. Wildlife research station reports on four game projects. Alabama Game and Fish News 8 (6): 4-5, 13, 14, 15, illus. Dec. 1936.
- Rasmussen, D. I. Outline of research projects of the Utah Wildlife Experiment Station. Utah Acad. Sci., Arts, and Letters 13: 215-217. 1936.
- Riter, W. E. The relationship of rodent control to range and pasture management. Amer. Cattle Producer 18 (7): 8-9, illus. Dec. 1936.
- Salyer, J. C. Practical waterfowl management. North Amer. Wildlife Conf. Proc., 1936. pp. 584-598.
- Scheffer, T. H. Cooking the coot, or what's in a name. Murrelet 17: 54. May/Sept. 1936.
- Sheldon, H. P. Guns and game: the last day of the season; grouse reports; new Winchester rifles and projectiles; smooth bores. Sportsman 20 (6): 64. Dec. 1936.
- Shillinger, J. E. (With R. G. Green, Univ. Minn., senior author). Progress report of wildlife disease studies for 1935. North Amer. Wildlife Conf. Proc., 1936. pp. 469-471.
- Taylor, W. P. The prong-horned antelope in the Southwest. North Amer. Wildlife Conf. Proc., 1936. pp. 652-655.
- Zahniser, H. In January--Thomas Nuttall. Nature Mag. 29: 7. Jan. 1937.
- In February--William Bartram. Nature Mag. 29: 71. Feb. 1937.

Press and Radio Information and Addresses, copies of which (chiefly in mimeograph) may be obtained from the Division of Public Relations, have been issued as follows:

- Leaflet summarizes fur laws of States. Press statement 933-37. Released Dec. 23.
- Plants that provide food and shelter for wildlife listed in U. S. circular. Press statement 963-37. Released Dec. 30.
- Condor, giant bird of California may be saved from extinction. (Forest Service release) Press statement 958-37. Released Jan. 10.
- Acquisition of 133,184 acres of land for Federal wildlife refuges approved. Press statement 1015-37. Released Jan. 13.
- 2,200-acre tract in Maryland, once plantation land, becomes U. S. wildlife research refuge. Press statement 1026-37. Released January 15.
- Chautauqua area in Illinois now a U. S. waterfowl refuge. Press statement 1036-37. Released January 16.
- Silver fox culling. Radio release. Farm Flashes, Dec. 14.
- Sheep fur research. Radio release. Farm Flashes, Dec. 21.
- Game in soil cover. Radio release. Farm Flashes, Dec. 31.
- Wildlife protection. Radio release. Farm Flashes, Jan. 7.
- More-wildlife hunt. Radio release. Farm Flashes, Jan. 15.
- Wildlife in the schools. Radio talk by Howard Zahniser, in charge, Current and Visual Information. Conservation Day Program, National Farm and Home Hour, Dec. 18.
- Meeting the need for wildlife habitat. Radio talk by Howard Zahniser, in charge, Current and Visual Information. Conservation Day Program, National Farm and Home Hour, Jan. 8.

WILDLIFE RESEARCH

Wildlife Surveys

Attends Ann Arbor Meeting.--Dr. H. H. T. Jackson and Dr. L. E. Hicks attended the Central States Wildlife Conference, December 10, 11, and 12, at Ann Arbor, Mich. Dr. Jackson spoke on "The Status of Present Research Work on Wildlife Problems" at the evening banquet on December 11. Dr. Hicks led discussions on farmer-sportsman relationships; inventories of wildlife species; controlled areas in northwestern Ohio; and wildlife utilization of agricultural lands.

Studies Southern Utah Range.--During the middle of November, Dr. D. I. Rasmussen, of the Utah Cooperative Wildlife Research Unit, spent several days in south-central Utah studying conditions on the private range lands in Salina Canyon and adjacent range on the north end of the Fishlake National Forest. He was a member of a party including Regional Forester Rutledge of Region 4, of the Forest Service; Assistant Regional Forester C. J. Olsen, in charge of recreation and lands for the Region; Orange Olson, in charge of fish and game work in the Region; George Keyser, city commissioner of Salt Lake City, in charge of waters and watersheds for Salt Lake City; and Forest Ranger Albertson of the Fishlake National Forest. During this visit Dr. Rasmussen and the Forest Service men discussed problems of big game on Western National Forests. They rode over various routes from the Mountain Ranch Ranger Station to study range conditions. Stomach analyses were also made of several elk and deer.

At the request of the secretary of the Utah Sportsmen's Association, Dr. Rasmussen attended the annual meeting of the Association held December 18 and 19 at Salt Lake City. The group is greatly interested in the work of the Utah Unit, and a complimentary report on the work was presented by Lee Kay, who is in charge of educational work for the Utah State Fish and Game Department.

Studies Teal in Mexico.--Logan J. Bennett, leader of the Iowa Cooperative Wildlife Research Unit, in company with three members of the Section of Distribution and Migration of Birds, left for Mexico, about the middle of December. In the Valley of Mexico, Mr. Bennett will seek information on blue-winged teal for use in his study of the life history of this species.

Studies Virginia Mammals.--C. P. Patton, graduate student with the Cooperative Wildlife Research Unit at Virginia Polytechnic Institute, who is writing a thesis on "A Preliminary List of the Mammals of Virginia", spent December 18 to January 4, studying mammal collections and record files of the Section.

Returns from Arizona.--E. A. Goldman, accompanied by his son, Luther C., continued field work during October and November, in connection with the biological survey of Arizona. The work began at Flagstaff, October 1 and terminated at Quartzite, November 17. Traveling by automobile, the party visited many sections in the northern and western parts of the State not covered by previous investigations. Small collections of mammals about which little is known were obtained for laboratory study.

Streeter Reviews Own Collections.--Daniel D. Streeter and his three children, of Brooklyn, N. Y., were in the mammal laboratories December 30. He observed the laboratory work in progress and examined the specimens he collected about 25 years ago in the western United States when he was a member of the Biological Survey staff.

Confers with Forest Service Officials.--Shaler E. Aldous conferred with Forest Service officials at Milwaukee, Wis., December 28 and 29, regarding a proposed program of research on white-tailed deer in Forest Service Region 9.

Florida Bird Book Price Reduced.--The price of "Florida Bird Life", by A. H. Howell of this section, published in 1932, by the Florida Department of Game and Fresh Water Fish in cooperation with the Biological Survey, has been reduced from \$6 to \$3, postpaid. The financial assistance of Mrs. Marcia Brady Tucker, of New York City, made the publication of the book possible. It contains 579 pages and 37 color plates from original paintings by F. L. Jacques. Copies may be obtained from the National Association of Audubon Societies, 1775 Broadway, New York City, or the Commission of Game and Fresh Water Fish, Tallahassee, Fla.

Work Progresses on Research Refuge.--Work on the Patuxent Research Refuge has advanced rapidly and the fencing is now completed. Twelve wild turkeys presented to the Bureau by the Maryland Conservation Commission have been planted on the area. White-tailed deer will probably be introduced next winter. Plans are also being made for beginning additional research work early in the spring. Plant and animal surveys already are being conducted and a study of selective feeding of quail has progressed.

Transfers to Biological Survey.--Miss Emily M. Harrison, formerly of the Patent Office, U. S. Department of Commerce, transferred to the Survey January 6. She is employed as clerk-stenographer in the Section of Wildlife Surveys.

Attend Scientific Meeting.--Dr. Rasmussen, of the Utah Cooperative Wildlife Research Unit, attended the recent meetings of the Utah Academy of Arts and Sciences at Provo, Utah, and presented a short paper on the present distribution of the sharp-tailed grouse in Utah. William H. Marshall, stationed at the Bear River Migratory Bird Refuge, also attended.

Many Bobwhites on St. Josephs Island.--On November 25, V. M. Lehmann, assistant at the Texas Cooperative Wildlife Research Unit, found 14 coveys of quail, ranging from 12 to 135 or 150 birds each, on about 30 acres on St. Josephs Island, 7 1/2 miles off the coast from Rockport, Tex. The concentration averaged from 7 to 10 birds per acre. Little or no heavy woody vegetation is available as refuge cover on the island. The birds find fairly satisfactory concealment and an abundance of food in the broomweed, partridge pea, perennial ragweed, doveweed, senna weed, and various southern grasses that make a heavy growth in the sandy soil. In addition to bobwhites, there are numerous waterfowl, wild turkeys, and deer on the 30,000-acre island. Practically all the common flesh-eating animals, as coyotes, bobcats, raccoons,

and opossums, are common on the island. It is also a concentration point for hawks. This indicates that bobwhites may withstand all their natural enemies in only a fair habitat.

Attends Meetings.--During November Dr. Walter P. Taylor, leader of the Texas Cooperative Wildlife Research Unit, attended several meetings and spoke on various phases of wildlife conservation. The meetings included the annual meeting of the Association of Land Grant Colleges and Universities at Houston, Tex., and the social science seminar of the Texas A. & M. College, at which he gave an address on "Ecology, What Is It?" In this talk, Dr. Taylor pointed out that too much specialization has resulted in unfortunate conflicts in conservation and land-use planning activities; that ecology looks ultimately to the integration of even the social and physical sciences; and that the ecological point of view is essential to the adequate solution of problems in wildlife conservation. Dr. Taylor also addressed the Rotary Club of Bryan, Tex., on "The Work of the Texas Cooperative Wildlife Service". He emphasized the vital need of conserving soils, water, forests, and wildlife, for the maintenance of satisfactory economic and social conditions. At a meeting of the Bryan Women's Club he spoke on "Conservation of Wildlife", and by special invitation he spoke before the Dallas Ornithological Society on "Some Ecological Implications of Biological Field Work." He pointed out that soils, vegetation, and wildlife generally must be considered if a good job is to be done in game research.

Dr. Taylor, who is the fourth vice-president of the National Federation of Federal Employees, was called to Washington during the week of December 14 to attend the meetings of the federation's executive council. During his stay in Washington, he spent several hours conferring with members of the Bureau staff.

Rabbits Retrapped.--Palmer R. Sime, a graduate student assisting at the Connecticut Cooperative Wildlife Research Unit, reports marked success in trapping rabbits. The number retrapped daily varies, but the longer a trap is in the same spot the more difficult it is to retrap the animals. Traps allowed to remain in one place for several weeks become ineffective. In two cases, however, it was found that the rabbit became rather tame, and used the bait for food instead of foraging in the wild. One animal was retrapped four times in a single day.

C.C.C. Boys Help With Quail Census.--Dr. Taylor, of the Texas Cooperative Wildlife Research Unit, reports that counting quail during November in woodland areas was facilitated greatly by C.C.C. enrollees from the Texas Forest Service camp at Huntsville. They were employed 160 man-days and were supervised by D. W. Lay and H. R. Siegler, assistants, and Dr. Taylor. Fifty-two coveys of quail were found on the 4,500 acres of forest land checked. It is believed that this is the first time C.C.C. boys have been used in making quail censuses in woodlands. After the hunting season it was planned that additional counts would be made.

In making a quail census on 2,442 acres of farming land, V. W. Lehman, Mr. Lay, and Mr. Siegler used two bird dogs. Nineteen coveys were found. Effectiveness of the use of dogs in making the counts was proportional to the density of cover. Where cover was sparse the dogs worked well, but as the cover became heavier the dog counts were less satisfactory. In woodlands the use of dogs was of little value.

Collect Weather Data.--Statisticians H. J. Ord and E. V. Ehrhart, of the Connecticut Cooperative Wildlife Research Unit, have been collecting extensive weather data for correlation with the reported game kills not only for the year's game reports but also for the past 42 years. The graphical representation of these data will show the relation of the past three winters to weather conditions of the past four decades.

Game Wardens' Short Course in Maine.--A wardens' training school was conducted December 28 to 31 at the University of Maine, where C. M. Aldous is in charge of the Cooperative Wildlife Research Unit. Addresses were given by George J. Stobie, commissioner, Department of Inland Fish and Game; Mr. Aldous; Prof. D. B. Demeritt, of the Department of Forestry; Chief Warden Lester Brown; Prof. G. P. Cooper, Department of Zoology; Dr. J. F. Witter, Department of Animal Industry; Joseph S. Stickney, warden supervisor, Southern District; G. Swanson, assistant professor of game management; Mr. Campbell, of the Maine Public Health Service; and others interested in wildlife. Regional Director B. E. Smith spoke on "Cooperation Between State and Federal Wardens". All the wardens participated freely in the discussions that followed. Some had been skeptical about the short course, but described this session as one of the best experiences of their lives. All favored another session next year.

Study Number of Woodcock.--Cooperating with the Resettlement Administration, the Maine Cooperative Wildlife Research Unit has been making regular census drives over representative blocks of territory in a study of the woodcock on the Edmonds Site, south of the Moosehorn Refuge. The last bird in this area was seen on November 6, but the drive census was continued until November 17.

Safeguard Wildlife Habitat.--Dr. L. E. Hicks, leader of the Ohio Cooperative Wildlife Research Unit, worked with Regional Director Daniel Janzen in preparing a list of suggestions for safeguarding wildlife habitat in connection with the W.P.A. drainage project in Lucas County, Ohio. These suggestions have been accepted and are being followed.

Inspects Forest Wildlife Conditions.--Leo K. Couch inspected the E.C.W. work program on the Ocala and Osceola Purchase Units, Florida National Forest, early in January. He obtained information in these Units on road and fire-lane development, timber-stand improvement, cutting and turpentine operations, effect of fires on wildlife food and cover, the cattle and semiwild-hog programs, and related game management problems.

Early in December, Mr. Couch inspected general wildlife conditions and the effect of the E.C.W. program in the Monongahela and Jefferson National Forests. On the Monongahela Forest in West Virginia, the planting of forest cover and food plants for ruffed grouse, black bear, white-tailed deer, wild turkeys, squirrels, and beavers is under way. An extensive stocking of deer, wild turkeys, and beavers in this forest is planned. Plans also are under way at the Jefferson Forest in southwest Virginia for producing more game.

Wins Rhodes Scholarship.--George Piranian, a graduate student assisting the Utah Cooperative Wildlife Research Unit in its waterfowl food studies, has been granted a Rhodes scholarship. In the Utah try-outs Mr. Piranian was selected as one of the two men to represent the State at the regional meeting for scholarship candidates at San Francisco. At this meeting he was chosen as one of the representatives who will attend Oxford beginning next fall. He will obtain his master's degree at the Utah State Agricultural College in June. His master's thesis will include material based on observations he made at the Bear River marshes while working under a wildlife research fellowship.

Food Habits Research

Attend Science Meeting.--Dr. Clarence Cottam and Dr. W. S. Bourn represented the Bureau at the meetings of the American Association for the Advancement of Science at Atlantic City, N. J., December 28 and 29. A number of papers on mosquito control and its relation to wildlife were presented, and in general the speakers recognized the necessity of considering wildlife in carrying on such work. One speaker pointed out that ditching and control of malarial mosquitoes need not be carried on more than a mile from human habitation as these species travel only a short distance from where they are hatched. He added that ditching and arsenical poisoning have not been entirely successful and that in the future biological control methods should be given greater consideration.

Recommend Management Practices.--On December 6, Dr. Cottam and Andrew H. DuPre, of the Cape Romain Migratory Bird Refuge, inspected the Guggenheim estate near Charleston, S. C., and recommended management practices for improving conditions for waterfowl and jacksnipe.

Christmas Bird Census.--On December 26, Chief Gabrielson, Dr. Cottam, A. L. Nelson, and Clarence F. Smith made a Christmas bird census in the vicinity of Port Tobacco, Md. This is the 11th consecutive season that a census has been made in this area. A total of 57 species were recorded this year, and the total number of birds seen was 5,970. Two brown thrashers, which are seldom seen in winter in this vicinity, were observed.

Inspect Mosquito-Control Projects.--On December 18 to 22, Doctors Cottam and Bourn inspected a number of proposed W.P.A. mosquito-control projects in New Jersey. Two projects to be undertaken near Red Bank were found to be acceptable as far as the welfare of wildlife is concerned.

Two others, however, were considered harmful to valuable wildlife. Mosquito-control activities in other parts of New Jersey, Delaware, and Maryland also were inspected.

Visits Eelgrass Areas.--During the latter part of December, Dr. Cottam inspected eelgrass areas along the Chesapeake and a number of other bays from New Jersey to North Carolina. Although this waterfowl food plant was badly injured last summer by disease, Dr. Cottam found that it appears to be recovering rapidly. This recovery indicates that next year's crop will probably be as good as any produced in the past few years. In the northern part of its range eelgrass appeared to have fared better last year than in other recent years.

Visits Laboratory.--Neil W. Hosley, of the Harvard University forestry staff, visited the Food Habits laboratory December 29 to January 2 and obtained information on the utility of woody plants as food for wildlife.

Prepares Report on Grouse.--W. W. Bailey, a graduate student under C. O. Handley at Virginia Polytechnic Institute, who is in charge of the forest-game demonstrations at the institute, arrived at the Food Habits laboratory January 11, to collaborate with A. L. Nelson in preparing a report on the ruffed grouse in the George Washington National Forest. He expects to remain at the laboratory two months.

Outlines Controlled-Burning Plans.--H. L. Stoddard spent December 11 and 12, inspecting management practices on Bull Island at the Cape Romain Refuge in South Carolina, and helped outline plans for controlled burning there.

Detailed to Washington.--Johnson A. Neff, of the Food Habits staff, with headquarters at Sacramento, Calif., is expected to arrive in Washington, late in January, for a month's detail in the Food Habits laboratory. While here he will discuss various phases of his work in California, and assist in starling-control experiments now under way. At the conclusion of this detail he will attend the wildlife conference in St. Louis, before returning to his headquarters.

On December 16, Mr. Neff attended a meeting of the State Association of County Agricultural Commissioners, at Bakersfield, Calif. He reports that conferences with these officials were of considerable value to his work.

Named on Committee.--E. R. Kalmbach, of the Denver Food Habits Laboratory, attended meetings of the Agricultural Clearing Committee of the State of Colorado held recently in Denver and Fort Collins. He was named chairman of the organization's subcommittee on wildlife, fish, and game. The primary function of the Clearing Committee, composed of representatives of various State, Federal, and local agencies, is to coordinate the activities of these units.

Shows Value of Turkey Restoration.--Harold L. Blakey, stationed at St. Louis, Mo., points out that the hunting of wild turkeys, even if the supply is limited, is of considerable economic importance. He estimates that the average hunter spent upwards of \$50 during the recent hunting season in Missouri. This money was spent for ammunition, food, clothing, transportation, and hotel accommodations, and shows one potential value of restoring the wild turkey to a hunting status over suitable ranges. Mr. Blakey adds that 80 percent of the birds killed during the hunting season in Missouri, were less than a year of age.

On December 9, Mr. Blakey went to Ann Arbor, Mich., where he attended the Central States Wildlife and Fish Conference, December 10 to 12. He returned to St. Louis, December 13.

Investigates Reported Duck Menace.--Theo. H. Scheffer, of Puyallup, Wash., spent a few days in December, in the vicinity of Mt. Vernon, Wash., investigating reports of ducks menacing seed crops. He also studied the plans of a farmers' organization, which had been formed to offset probable damage. Mr. Scheffer reports that thus far he and the local county agent and a State game protector found no real damage had occurred, but that seed crops of cabbage and turnip and the spring seedings of timothy and clover were threatened. He planned to inspect the area again in January.

Uhler in Field.--Francis M. Uhler left Washington December 22, for Winona, Minn., and La Crosse, Wis., to investigate wildlife conditions and to study the problems connected with the development of the Upper Mississippi River Wildlife and Fish Refuge. He returned to Washington, January 18.

Distribution and Migration of Birds

Addresses Virginia Wildlife Group.--F. C. Lincoln spoke on the Bureau's bird-banding activities and its waterfowl investigations at the organization meeting of the Northern Virginia Wildlife Federation in Alexandria, January 14. Congressman Howard W. Smith acted as chairman of the meeting. Following Mr. Lincoln's talk, a general discussion on crows, hawks, and owls was held. A talk by Talbot Denmead of the Bureau of Fisheries, formerly of the Biological Survey, was given at the opening of the meeting. He spoke on the propagation and protection of the nation's black bass resources.

Two Expeditions in Mexico.---Two expeditions investigating waterfowl conditions in Mexico met in Mexico City on Christmas Day. The two parties, accompanied by Associate Biologist Logan J. Bennett, of the Section of Wildlife Surveys, then drove to Acapulco, State of Guerrero, on the west coast to check the concentration of waterfowl in two important lagoon areas in that vicinity. After returning to Mexico City, Associate Biologist L. J. Goldman and Field Assistant Frank Colcord proceeded to Guadalajara, from which point they have been investigating important waterfowl areas at Lake Guitzeo, Patzcuaro, and Chapala. A preliminary report from Mr. Goldman indicates that there is no increase in the numbers of waterfowl at the first two lakes as compared with the numbers he observed there two years ago.

Associate Biologist Charles E. Gillham and Collaborator Luther C. Goldman moved to Tampico, on the gulf coast, to investigate the numbers of waterfowl wintering in that region. When they complete this work they plan

to move their headquarters to Brownsville, Tex. From this point they may investigate the Laguna de la Madre Austral, in Mexico, a sparsely inhabited region difficult to reach. They also plan to re-enter the interior of Mexico, to investigate waterfowl areas in the States of Durango, Coahuila, and Chihuahua.

Flyway Biologists Appointed.--Associate Biologist Harold S. Peters, of the Section of Wildlife Surveys, who has been stationed in Alabama, will shortly take up his new duties as biologist for the Atlantic flyway. His new headquarters will be at Washington, D. C., but for the next month or two he will remain in the Southeastern States.

The transfer of Associate Refuge Manager George B. Saunders from the Division of Migratory Waterfowl to the position of biologist for the Central flyway has been approved by the Chief. It is hoped he will be able to begin his new duties March 1, with headquarters at Denver, Colo.

Digest Gives Facts on Migration.--In view of the favorable response accorded Migration Memorandum No. 1, which presented a digest of data on the spring migration of 1935, it is planned to continue issuing similar memoranda on bird migration. Information for the memorandum was supplied by cooperative observers. Preparation of Memorandum No. 2 is well under way. It will be sent to the cooperative observers and others interested.

Waterfowl Increase Shown by Reports.--A preliminary analysis of reports on the fall flight of waterfowl, supplied by observers answering a Bureau questionnaire, shows a satisfactory and general increase compared with estimates of the previous fall flight. Species showing a conspicuous increase include the mallard, black duck, scaup, blue-winged teal, and blue goose. Decreases were noted in the redhead, canvasback, bufflehead, and snow goose.

Set Banding Records.--The following trapping-station operators broke all records for the numbers of birds banded during 1936: H. S. Peters, Auburn, Ala., with a total of 21,500 chimney swifts; Dr. Oliver L. Austin, North Eastham, Cape Cod, Mass., with a total of 19,483 individuals, mostly common terns; and E. A. McIlhenny, Avery Island, La., with a total of 18,086 birds, mostly waterfowl.

Many Bands Recovered.--During the past waterfowl hunting season more than 3,000 letters reporting recoveries of banded birds, principally ducks, were received.

Interesting Returns from Banded Birds.--A blue-winged teal banded October 31, 1936, at Avery Island, La., was shot January 2, 1937, at Recreo, Matanzas, Cuba; a catbird banded September 20, 1936, at Northville, S. Dak., was killed January 1, 1937, at Tuxpam, Veracruz, Mexico; a royal tern banded July 18, 1931, at Cape Romain, Charleston County, S. C., was shot December 20, 1936, at Port-au-Prince, Haiti; a tree swallow banded June 28, 1933, at North Eastham, Cape Cod, Mass., was killed December 18, 1936, at Tegucigalpa, Honduras, Central America; a great blue heron banded June 21, 1936,

at Depue, Ill., was shot November 30, 1936, on the Monkey River, British Honduras, Central America; a goldfinch banded November 12, 1931, at Cedar Beach, Del., was found dead about October 31, 1936, at North Lincoln, Maine; a Canada goose banded March 7, 1934, at St. Marks, Fla., was killed May 31, 1936, at Fort Georges, via Moosonee, Ontario, Canada; a chimney swift banded August 2, 1929, at Thomasville, Ga., was found dead in July 1936, in the same locality.

Fur Resources

Addresses Fox Producers.--Frank G. Ashbrook, in charge, Section of Fur Resources, in addressing a meeting of a fox producers' association at New York City, January 4, pointed out that the fur farmers in the United States are now producing annually 20 percent of the total value of the raw silver-fox fur supply in this country. Mr. Ashbrook said that the United States and Canada produce close to 400,000 pelts annually; Norway, Sweden, Netherland, Denmark, Union of Soviet Socialist Republics, Germany, England, France, Switzerland, Japan, and South America together produce about 350,000 pelts. The most difficult problem now confronting the fox farmer, according to Mr. Ashbrook, is the disposal of darker pelts at a profit. He suggested that the fur tradesmen cooperate with the fur farmers in developing a market for the darker pelts.

Trap Experiment Under Way.--One hundred and eighty steel traps of six different designs are being tested at the Blackwater Migratory Bird Refuge in Maryland, to determine the most efficient type for taking muskrats. The traps will be inspected daily for 30 days. Information concerning the operation of each trap will be recorded, and at the close of the experiment the six different types will be rated for efficiency. The results of this experiment will aid the Bureau in purchasing traps for taking muskrats on wildlife refuges.

Silver Foxes Pelted.--Chas. F. Bassett, director of the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., reports that 46 silver foxes were pelted this season at the station. Twenty-six of these were excess male pups, and the remainder were older animals that had outgrown their usefulness. Last season all cross-bred foxes at the station were pelted, and by next year it is planned to have all Alaskan silver foxes disposed of, leaving only the Standard silvers. The use of Standard silver foxes in experiments, it is thought, will produce more uniform results than those produced with other foxes. Fourteen surplus minks and three male martens also were pelted.

Conducts Field Day.--H. J. Wilder, farm adviser for San Bernardino County, Calif., who is assisting in the organic citrus fertilizer experiments at the U. S. Rabbit Experiment Station, conducted a field day at the station December 30. Although the weather was inclement, 35 persons attended. Many citrus growers are interested in this experimental work, in which it has been shown that crop yields can be increased with the use of rabbit manure. One of the largest crops in the history of the grove at the station was obtained in 1935, following the use of this fertilizer. Results from the fertilizer test indicate that it is advisable to use more nitrogen in the citrus groves

in the Fontana area than previously recommended. Improved management and fertilizing practices also help reduce the wind injury to trees.

Active in 4-H Club Work.--Allan Suitor, foreman at the U. S. Rabbit Experiment Station, is continuing his activities in the Fontana 4-H rabbit club work. This group, one of the outstanding clubs of San Bernardino County, has been under his leadership several years. The club holds regular meetings, takes part in radio broadcasts, and exhibits its products at the Los Angeles county fair at Pomona. Mr. Suitor says the rabbit lends itself well to 4-H club work. Noteworthy accomplishments of the club have been listed in the 4-H Club Yearbook for San Bernardino County.

In Washington.--Chas. F. Bassett, director of the U. S. Fur Animal Experiment Station, spent December 6 to 12 in the Washington office discussing the work of the station and outlining additional experiments for the coming year. This was Mr. Bassett's first trip to the Washington office. He gave a brief talk at one of the staff conferences of the Bureau, and also conferred with George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif., who was in the Washington office at the same time.

Talks at Masonic Meeting.--Mr. Bassett gave an address on the "U. S. Fur Animal Experiment Station--Its History and Functions," at the annual meeting of the Past Masters Association of the Masonic Lodge, at Glen Falls, N. Y., on December 20. He used 18 pelts in demonstrating the experimental work of the station.

Designs Underground Rabbit Hutch.--Several persons living in the desert region in southern California visited the U. S. Rabbit Experiment Station at Fontana recently and said they were interested in raising rabbits, but felt that the summer temperature would be a limiting factor. These visitors suggested that possibly an underground hutch or an outdoor hutch with an underground compartment might be developed. Following this suggestion, Allan Suitor, foreman at the station, constructed an underground hutch. One doe kindled a litter in the underground compartment. The young are now out of the nest box. Results of the experiment indicate that this type of hutch is suitable in areas where summer heat has limited rabbit production.

Disease Control

Assist Rabbit Breeders and Fur Farmers.--Dr. Edward L. Vail, now in charge of the fur-animal disease laboratory in Los Angeles, Calif., reports considerable interest among rabbit breeders and fur farmers in the development of the laboratory. Responding to requests for help on disease problems, Dr. Vail has visited several rabbitries in the vicinity and a chinchilla farm at Inglewood, Calif.

Fox farmers in California are requesting more assistance in the solution of their disease problems, and during November and December Dr. Vail and Dr. McKenney made a survey of the fox farms at Big Bear, Calif., to determine the extent of internal parasites and infectious diseases there. Many carcasses that had been pelted were examined for the presence of parasites and disease conditions. Cooperating with the fox breeders, Dr. Vail and Dr. McKenney are conducting experiments in the treatment of sterility in foxes.

Lectures Before Veterinary Group.--On January 14 and 15, Dr. Shillinger attended the annual meeting of the Ohio State Veterinary Medical Association at Columbus, where he had been requested to give an illustrated lecture on the diseases of wild animals. The association in its request said that it felt such an address would help it gain recognition in the field of wildlife conservation.

Transfers to Washington.--On December 23, Dr. McKenney, who for the past 5 years has been stationed at the U. S. Rabbit Experiment Station, at Fontana, transferred to Washington, as assistant to Dr. J. E. Shillinger. At the rabbit station he was in charge of the disease investigations.

After reporting for duty at Washington, Dr. McKenney made a trip to Florida, at the request of the Bureau of Animal Industry, with whom the Biological Survey is cooperating in a study of the infestation of deer with the Texas fever tick. He returned to Washington January 7.

Investigates Disease Outbreak.--Dr. Shillinger returned January 13, from Maine, where he had been called to diagnose and recommend treatment for a disease that had broken out on several large fox ranches. While in the vicinity, he attended the meeting of the Maine State Veterinary Association at Augusta and presented an illustrated lecture on diseases among foxes and their treatment.

LAND ACQUISITION

Commission Approves Refuge Acquisitions.--The Migratory Bird Conservation Commission, consisting of the Secretaries of Agriculture, Commerce, and Interior, Senator Pittman and Representative McReynolds, on January 12, approved the acquisition by the Bureau of 133,184.66 acres of land in 34 migratory bird and upland game refuges in 21 States--Washington, Oregon, Nevada, Idaho, Utah, Wyoming, New Mexico, North Dakota, Minnesota, Iowa, Missouri, Texas, Louisiana, Michigan, New York, Maryland, Delaware, Virginia, Florida, Georgia, and Mississippi. Most of the lands thus approved are to consolidate previous acquisitions and to bring about complete ownership of lands useful for refuge purposes. One Texas project involves the acquisition of one unit of more than 46,000 acres, a favorite concentration place for migratory waterfowl and also valuable for upland game.

Approvals include about 4,500 acres in Back Bay, Va., a famous spring and fall concentration place for ducks and geese in their migrations from and to their nesting grounds. This area is also in proximity to intensive shooting grounds.

An extensive area comprising about 20,000 acres of land in the Charles Sheldon Antelope Refuge in northwestern Nevada also was approved for purchase. These lands control practically all the available water supply in an otherwise semi-arid region where water resources are extremely valuable for full utilization of open range lands that have been set aside by Executive order as an antelope refuge. Further purchases of privately owned lands on the Hart Mountain Antelope Refuge in southeastern Oregon were approved. These tracts control the source of water supply in the midst of 276,480 acres of public domain withdrawn by the President within recent months as a sanctuary for antelope.

Progress also was made in the consolidation of Government-owned lands by the approval for purchase of all remaining privately owned lands within the exterior limits of the Elk Refuge in Teton County, Wyo., popularly referred to as Jackson Hole.

Lands in the Skagit River Delta, Wash., also favorably acted upon by the Commission, will provide an important refuge on the Pacific coast flyway, where opportunities are limited to establish refuges badly needed for the protection of migratory waterfowl.

A tract in Montezuma Marsh, Seneca County, N. Y., though small compared with major projects of the Survey in other parts of the country, is important because of its location and environment, as it provides a sanctuary for waterfowl in their migrations and during the nesting season. This refuge is on the flyway between James Bay, an estuary of Hudson Bay, and Chesapeake Bay, and is not far from the Great Lakes and also the Finger Lakes in New York, over which migratory birds fly to their wintering grounds on the South Atlantic coast.

Inspects Surveying Work.---Early in January Arthur A. Riemer inspected the surveying work on the St. Marks Migratory Bird Refuge, Fla., and the Okefenokee Wildlife Refuge, Ga.

Transfer to Texas.---J. C. Pinney and his assistants, who have been conducting surveys on the Okefenokee Refuge, and on the Savannah River Refuge in South Carolina and Georgia, have reported for duty at Austwell, Tex., where they will survey the Aransas Refuge area. Marion E. Phillips and assistants, who have been surveying in North Carolina and Maryland, have returned to the Bombay Hook Migratory Waterfowl Refuge, Del. Kenneth C. Kern, assistant cadastral engineer, who has been on detail in the Washington office, has returned to San Antonio, Tex.

Attend Trial.---Albert J. Rissman, assistant land negotiator in charge of the San Antonio office, has returned to his headquarters from a detail in Washington. At Washington, Mr. Rissman and Charles S. Cook, associate cadastral engineer from St. Louis, Mo., were witnesses for the Government in the case of the Pamlico Timber Corporation vs. United States. Howard J. Sargeant, assistant land valuation engineer, and W. C. Towns, assistant land negotiator, both of the St. Louis office, are in Washington.

MIGRATORY WATERFOWL

Chautauqua Area Becomes Refuge.--By Executive order dated December 23, 1936, the Chautauqua area, in the Illinois River bottoms near Havana, Mason County, Ill., was made a Federal migratory waterfowl refuge. It is situated in a region long recognized as one of the principal stopping places for migrating birds and where, in times past, thousands of ducks and geese were slaughtered, barrelled, and sent to the Chicago and eastern markets. Since 1925 no further drainage operations have been undertaken in the area, and it has been permitted to reflood itself. The Bureau's rehabilitation program in the area has already given evidence of returning it to its former waterfowl attractiveness. The levee is being rebuilt and gaps are being blocked. The growth of valuable waterfowl food plants is being encouraged by spillways that have been constructed to keep the water at a permanent level. The fall and spring migrations last year brought many birds to the refuge, and golden-eyes and American mergansers remained in the open water holes through the winter. From February 25 to the middle of April, about 18,000 canvasbacks and several thousand redheads were on the refuge. Many thousand lesser scaups visited the area between February 25 and May 1. Although shallow-water ducks do not spend much time on the new sanctuary, the Bureau plans to improve the refuge so these species will stay longer.

Inspects Refuges.--A. C. Elmer, assistant chief of the Division, left Washington on December 22 to inspect migratory waterfowl refuges in Michigan, Minnesota, Illinois, Missouri, Tennessee, Arkansas, Louisiana, Texas, and New Mexico. He will also confer with regional directors and State game conservation officials about the future administration of these refuges.

Good Shooting at Bear River.--George E. Mushbach, superintendent of the Bear River Migratory Bird Refuge in Utah, reports that the 1936 hunting season on this refuge was with one exception the most successful for hunters of any during the past five years. The average kill this season was 4.17 birds per person as compared with 4.81 in 1932.

"Ducks were more abundant this season than in several seasons past," Mr. Mushbach wrote. "Strange as it may seem, canvasbacks were present in far greater numbers. The Bear River marshes in the past have not attracted canvasbacks particularly. During the early part of the season these ducks were one of the predominant species. It was estimated that between 35,000 and 40,000 were present in Unit 2 alone. . . . It was a matter of comment on the part of old-time guides and hunters that never in the history of the marsh had they witnessed such a heavy migration of these ducks. Redheads also were rather abundant."

Many Ducks on White River.--H. W. Terhune, superintendent of the White River Migratory Waterfowl Refuge in Arkansas, reports more than 700,000 ducks on the refuge during the last week of December.

Check Hunters at Tule Lake.--On the Tule Lake Bird Refuge, Calif., where for the first time a public shooting ground was operated during the past hunting season, checking stations similar to those in use on the Bear River Refuge, Utah, were installed. They helped keep a record of the daily kill. At these stations, one on each side of the refuge, each hunter is checked in to see if he has a Federal hunting stamp and a State hunting license, and whether his gun is properly plugged. If he has complied with both State and Federal regulations, he is given a permit to shoot on the refuge. As he leaves the refuge, his bag is checked to see if it conforms with the legal limit, and whether it contains any protected species.

Clinton G. Fairchild, in charge of the Tule Lake Bird Refuge, reports that numerous hunters used the public shooting grounds. On the opening day, 847 were checked in and out. They took 1,448 pintails, 295 mallards, 297 wigeons, 4 goldeneyes, 7 gadwalls, 126 shovelers, 7 cinnamon teals, 51 green-winged teals, 15 ring-necked ducks, 17 scaups, 502 cackling geese, 519 white-fronted geese, 30 Canada geese, 89 snow geese, 24 Hutchin's geese, and 12 coots.

Engineering Work Nears Completion.--The Bureau of Agricultural Engineering reports that the engineering work on one unit of the Seney Migratory Waterfowl Refuge, Mich., has been completed. This work, done under contract, included the construction of approximately 20 miles of dikes, which will also serve as patrol roads, and the erection of spillways and drainage ditches. Plans for the other unit have been completed and the construction work by the C.C.W. is to begin soon.

Late in November, the dam and other engineering structures on the Talcot Lake Migratory Waterfowl Refuge, Minn., were completed. This work, done under contract, was also supervised by the Bureau of Agricultural Engineering. The field work on the engineering plans for the Bitter Lake Migratory Waterfowl Refuge, N. Mex., and for the Bombay Hook Migratory Waterfowl Refuge, Del., has been completed.

The E.C.W. work project on Dam 357, on the Lower Souris Migratory Waterfowl Refuge, N. Dak., is progressing in spite of unfavorable weather conditions, which have made it necessary to build shelters over the concrete work. Members of the Survey who have inspected the work on this dam report that the C.C.C. boys have done as fine a job on this type of construction as any they have seen.

On the Tamarac Refuge, Minn., it was necessary because of deep snows to suspend the engineering surveys until spring.

Inspects Bombay Hook Refuge.--Amos B. Emery, of the Section of Restoration and Development, returned recently from the Bombay Hook Migratory Waterfowl Refuge, Del., where he investigated the desirability of using a group of buildings as a refuge headquarters. These were acquired by the Bureau through recent purchase activities. Mr. Emery reports that these buildings include a fine old colonial house, strategically located, which can be altered and repaired and made into an excellent dwelling for the refuge manager.

N.Y.A. Men Aid Bureau.--Largely through the efforts of M. O. Steen, regional project administrator of the Bureau, the National Youth Administration, in cooperation with the Biological Survey, is offering a group of North Dakota young men part-time employment as biological observers on the easement refuges of the State. The N.Y.A., under Robert Byrne, of North Dakota, is undertaking to supply one to ten young men on each of these 70 easement refuges, to work under the direct supervision of the Survey. In most instances these young men are rural youths living in the vicinity of the refuges and not going to school. The Survey and the N.Y.A. have divided the State into four districts, each to have a supervising biologist under Bureau supervision. Each N.Y.A. observer is allotted a refuge, or part of one refuge, depending on its size, and is to send his district biologist a weekly report of conditions there.

This cooperation between two Government agencies should result not only in interesting employment for a group of young men, but also in training them in a new line of work.

Shinnecock Refuge Established.--The property known as the Shinnecock Bay Light Station Reservation, situated in Suffolk County, Long Island, N. Y., was made a refuge and breeding ground for migratory birds and other wildlife by Executive order of January 8. This property, to be known as the Shinnecock Migratory Bird Refuge, is primarily under the jurisdiction of the U. S. Department of Commerce, and its reservation as a wildlife refuge is subject to use by that Department for lighthouse purposes.

Supervises Construction.--Paul G. Hirschler, assistant architectural engineer of the Section of Restoration and Development, has completed his work in connection with the building construction on the Malheur Refuge, Oreg., and is being transferred to the St. Marks Migratory Bird Refuge, Fla., where he will supervise the construction recently begun on the new headquarters buildings and patrolmen's cabins. He will also make occasional trips to the Delta and White River Refuges to inspect construction work in progress.

Personnel.--Robert E. Towle, formerly junior refuge manager on the Malheur Migratory Bird Refuge, Oreg., has been transferred to the Boulder Canyon Wildlife Refuge in Arizona and Nevada. His headquarters are at Overton, Nev.

Earle R. Greene, junior refuge manager, is now acting in charge of the recently acquired Okefenokee Wildlife Refuge, Ga., having been transferred from the Lake Mattamuskeet Migratory Waterfowl Refuge, N.C. His official station is at Folkston, Ga.

GAME MANAGEMENT

Addresses Boone and Crockett Club.--At the request of former U. S. Senator Frederic C. Walcott, of Connecticut, and Kermit Roosevelt, secretary of the Boone and Crockett Club, Mr. Young spoke before the annual meeting of the club, December 16, on the development of the Charles Sheldon Antelope

Refuge, Nev. Several years ago this club, in cooperation with the National Association of Audubon Societies, raised funds for the purchase of approximately 2,200 acres of privately owned land within that refuge. After the land was bought it was deeded to the Government for refuge purposes. Mr. Young used lantern slides and motion pictures to illustrate outstanding developments on the refuge. Billy Sheldon, son of the late Charles Sheldon after whom the refuge was named, was among those who attended the meeting.

Game Management Agents and Game Preserves

C.C.C. Completes Work at Niobrara.---C.C.C. Company 753 moved November 30 from the Niobrara Game Preserve, Valentine, Nebr., to Fairbury, Nebr., where it will be engaged in soil-erosion control. This company occupied the camp site at the preserve on April 13, 1935, and since that time has accomplished much in the way of improvements, including the construction of game and stock fences, truck trails, bridges, lookout towers, and buildings. One of the outstanding accomplishments was the construction of a vehicle bridge across the Niobrara River, permitting easier access to the north pasture. Dr. Gabrielson expressed the Survey's appreciation of this C.C.C. work in the following letter:

"The Biological Survey wishes to express its very real appreciation for the excellent permanent improvements developed on the Niobrara Refuge. The roads, buildings, fences, and other construction efforts, in addition to all of the other work accomplished, will be of permanent and lasting benefit in the administration of this important area.

"It has been my pleasure to see much of the work and I look forward to seeing the new bridge, which was a very much needed improvement.

"All of the boys who have worked on these projects, as well as all of the supervisory personnel in the camp, may well feel a real pride in their accomplishments.

"Again the Biological Survey thanks all of you for a fine job."

The C.C.C. Camp headquarters at the Niobrara Preserve are now occupied by a crew of W.P.A. workers, who will continue some of the work began by the C.C.C. men. They have been engaged on a special project of collecting and burning large quantities of Russian thistle that accumulated along the preserve fences. Severe wind storms on November 22 and 24 moved a large quantity of dirt and piled thistles high for miles. Canyons 20 feet deep and also some of the ponds on the preserve were filled with thistles.

Visits Waterfowl Haven.---Game Management Agent George M. Riddick reports that during November he patrolled the North Platte River in Western Nebraska, where no waterfowl hunting is permitted by the State after 12 o'clock noon. This makes the river a virtual sanctuary for waterfowl. In Garden

County, a State law prohibits the hunting of waterfowl along the North Platte River at any time. Thousands of various species of waterfowl congregate annually along this stretch of the river. In patrolling this section Mr. Riddick says he was greeted by calls of Canada geese and mallard ducks at every turn in the river.

Mr. Riddick was transferred from Aberdeen, S. Dak., to new headquarters at Boise, Idaho, on December 1. On December 26 he observed about 400 American mergansers and about 4,500 mallards along the Boise River near Boise, Idaho. These birds were within a 4-mile radius of the city. Mr. Riddick says there was ample food for them and that the water was open, making it easy for them to rest and feed. At the time of his visit the birds were not being hunted or otherwise molested.

Detailed to California.--During December, Game Management Agent Frank F. Poley worked in California, helping with law enforcement in Region 1.

Bison Range Employee Injured.--Stanley Driscoll, an employee of the National Bison Range, Mont., was seriously injured December 7 while corralling buffalo. In racing to head off an animal that had cut back from the herd, his horse apparently slipped and fell on him. He suffered a severe brain concussion and was unconscious two weeks. He is improving slowly at a hospital at Polson, Mont. Mr. Driscoll probably owes his life to the refusal of his horse to leave the scene of the accident. This enabled Clarence Young, another employee of the range, who was also corralling buffalo at the time, to locate the wounded man without great delay and bring him to the range headquarters before exposure to the cold had fatal results. The accident occurred shortly before dark, and later it would have been difficult to find him.

Injured at Niobrara Preserve.--On December 17, Harry Jones, a W.P.A. employee at the Niobrara Game Preserve, Nebr., was mysteriously injured while working. He suffered a fractured skull, and was unconscious several hours. Although he is unable to recall how he was injured, it is believed that he may have fallen on a sharp object, or was struck from the rear with a sharp instrument. An investigation to determine the cause of his injury is under way.

Notes on Sullys Hill.--During 1936, a total of 17,636 persons with 3,412 cars visited Sullys Hill Game Preserve, N.Dak., a large increase over 1935. The weather has remained mild in the vicinity, and upland game birds and big-game animals have been able to get along without emergency feeding. The crew of W.P.A. workers has been improving roads, repairing the headquarters building, and making other improvements on the preserve. A young beaver has been observed near the beaver house in the small lake within the preserve, making a total of five beavers there.

Alaska Game Wardens Busy.--During the final quarter of 1936, a total of 92 cases of Alaska Game Law violations were reported by game wardens. A summary of the violations shows that aliens were involved in 41 cases.

Many of these defendants forfeited their firearms and were assessed heavy fines. Nine cases of illegal sale of game animals were successfully prosecuted; 36 for illegal possession of game and fur, and 6 on nonresident violations. One case involved the forfeiture of 536 beaver skins seized from an unidentified violator near Dillingham. An alien operating without a proper fur license was fined \$500 and ordered to buy an alien license costing \$500. Total fines assessed during the quarter amounted to \$2,105.55. Delinquent license fees totaling \$1,600 also were collected.

Patrols Arctic Coast.--To gain first-hand information on actual winter conditions along the Arctic coast of Alaska, Game Warden Grenold Collins is traveling from Kotzebue to Cape Halkett, several miles east of Barrow. By using a dog team and wearing snowshoes he is able to visit native families and obtain reliable information on wildlife conditions. Each winter the Alaska Game Commission receives many contradictory reports on wildlife in the far north. Warden Collins hopes to furnish the Commission facts on depredations by wolves, starvation of natives, and on other subjects that have been reported at great variance. Early in January he was scheduled to be a few miles east of Barrow, where he is to investigate reports that a native-owned reindeer herd was being destroyed by wolves. He expects to start his return journey to Kotzebue in time to board an airplane and reach Juneau in March.

Assist Rescue Workers.--Male members of the Alaska Game Commission staff at Juneau, worked several days and nights with rescue workers in excavating the recent landslide there and recovering the bodies of persons killed. The landslide took a toll of 15 lives.

Assumes Warden Duties.--With the transfer in December of Alaska Game Warden Homes W. Jewell to Seattle, Wash., Deputy Warden H. Douglas Gray assumed the duties of warden in District 1, with headquarters at Juneau. He will remain there until spring, when he will board the patrol vessel, the Brown Bear.

Law Enforcement

Judge Denounces Duck Bootlegging.--"Wildlife is not for sale in this court," said Judge Daniel S. O'Brien, of the San Francisco City and County Municipal Court, on December 3, in sentencing a defendant to six months in jail for collecting 440 ducks from market hunters. The following excerpts from the judge's remarks made in passing the sentence reflected this court's attitude on market hunting and allied activities:

"I have tried by the imposition of jail sentences in matters of this kind to deter others from violating the law in regard to the animal and fish life of this State.

"Not many weeks ago I had occasion to try a case which concerned the possession of 212 ducks. At that time I imposed a jail sentence of 90 days in the county jail. I assume that that fact is known to this defendant. He knew he was violating the law when he brought the ducks to San Francisco and delivered them to the other defendant in this case. What would you say

or what would anybody say if a man or woman took a lighted torch throughout the forests of this great State and ignited the timber of the brush, destroying the forests of this State. No punishment would be too great for such a person.

"I hope that the time will never come in the State of California where the only specimens of bird life in this State are only contained in museums.

"No man can come into this court and pay a fine for a violation of this character. In other words, wildlife of the State of California is not put up on the auction block to be sold to the highest bidder. No man or woman can buy the wildlife as far as I am concerned.

"The testimony given in this case yesterday discloses that this defendant told that it took him three days to gather his illicit cargo of 440 ducks. That indicates to my mind that he knew where to get these ducks, because he gathered that amount of ducks in three days from market hunters and brought them to San Francisco to the other defendant in this case for no other purpose, it seems to me, than that the number of ducks would be for sale by the other defendant. The legislature of California has passed laws defining the season during which ducks and other game shall be hunted. It has limited the amount of ducks to be possessed at one time by any hunter. It may seem to some individuals that those limitations are put upon the statute books for the benefit of one class, the sportsmen of California. After all, the sportsmen of California have done a wonderful thing if they have induced the legislature of this State to make such limitations.

"If this thing goes on there will be no wildlife as far as game is concerned in the State of California. The game of California must be protected and the laws of the State of California must be carried out. How is that done? If the courts do not uphold the actions of the Fish and Game Commission of California, all the laws passed by the legislature of this State will be nullified. We might as well tear them out of the book.

"Now I have been consistent in this matter as every magistrate should be and as I said before, no man can come here and buy ducks by paying a fine. The testimony in this case showed that this defendant had a well-defined object in view in bringing such a large quantity of ducks to this city and I would be failing in my duty representing the people of the State of California, and representing the forces of law and order, if I did not do my full duty. This defendant cannot complain of the sudden change in the attitude of this court. The policy of this court in matters of this kind is well established. I am not going to visit the full penalty of the law on this particular defendant. As you well know such full penalty may, in the judgement of the court, consist of a jail sentence and the imposition of a fine in addition thereto, such fine to be paid by the defendant in addition to the service of the term of imprisonment specified by the court, or in lieu thereof, a certain number of days for failure to pay the fine.

"Punishment in my opinion is not designed to punish the particular defendant before the court. It is to act as a warning to others that they will not be guilty of a similar crime.

"In view of the fact as presented by you this morning that this defendant plead guilty and did not impose further costs upon the city and county of San Francisco, I will not visit upon him the full penalty of the law by the imposition of a fine in addition to the jail sentence, but he must suffer the full penalty of the law as far as the jail sentence is concerned. The full penalty of the law according to the statute is six months in the county jail."

Apprehends Hunters Using Boat.--An agent in Florida received a telegram early in November, reporting the shooting of wild ducks from a motorboat, but not giving its name. After driving through 44 miles of heavy rain he reached the scene of the alleged violation only to learn that the craft had left. He got the name of the boat from a bridge tender, however, and 16 miles farther along learned from another tender that the boat had passed 45 minutes before. Passing up the next draw bridge, he stopped at the one beyond and learned that the craft had not yet passed. "Backtracking", he found that the boat had gone into a harbor for fuel, where he boarded it, but at first was unable to find any ducks. When he left, however, he had eight ducks and signed statements from the two gunners. Their cases are being considered for court action.

Deer Killer Lands in Jail Quickly.--On December 12, shots were heard on the Wichita Wildlife Refuge, Okla. On investigating in the vicinity where the shots were heard, employees of the refuge found the head and hide of a deer. A search warrant was immediately obtained by a State game ranger and on the premises of the suspected violator the horns and meat of a recently killed deer were found. The horns fitted the deer head. The suspect was taken into custody and upon arraignment in Federal court at Oklahoma City, two days later, he pleaded guilty and was sentenced to six months in jail.

Had a Variety of Birds.--A hunter was found afield in Moosa Canyon, Calif., December 6, by State and Federal officers with 7 mourning doves, 1 red-shafted flicker, 1 golden-crowned sparrow, and 1 sapsucker in his possession. In State court at Escondido on December 12, the hunter pleaded guilty and was fined \$50.

Traces Beaver Shipment.--An agent checking shipments at a city in Illinois found three beaver skins from Minnesota and turned over the information to Minnesota authorities. Although the shipper gave a fictitious name in making the shipment, he was arrested and in State court on December 4 was fined \$150 and costs of \$21.

Fake Labeling Failed.--On August 8, at San Antonio, Tex., authorities found 9 cardinals and 15 painted buntings in a crate consigned to California, and marked "18 Green Canaries." The shipper, arraigned in the Federal Court for the Western District of Texas on January 11, was found guilty of violating section 242 of the Lacey Act and fined \$100. On a count involving violation of section 243, he was fined \$100 and sentenced to six months in jail, the fine and jail sentence being suspended, however, and the defendant being placed on probation for three years.

Exceeded Bag Limit.--An agent apprehended a hunter at Lake Traverse, Minn., on October 20, with 17 ducks, including several canvasbacks. He saw the hunter hide the ducks in different spots and in an icehouse, a cottage, a woodbox, and the rumble seat of his automobile. Arraigned in State court, November 6, the hunter was fined \$20 and costs of \$5.90. The hunter's gun was seized and the ducks confiscated. Two men charged with killing 78 ducks on December 11, in Matagorda County, Tex., and using guns of more than a three-shell capacity, were arraigned in Federal court at Houston, January 7. They pleaded guilty and on two of the counts were fined \$50 each and on two other counts they were sentenced to jail for six months. Sentences were suspended for five years pending the behavior of the defendants, and on the condition that they refrain from any hunting until 1938. An agent and a State warden found a hunter near Rockport, Tex., on December 13, with 16 dead ducks. Arraigned in State court on December 19, the hunter pleaded guilty and was fined \$86. During the recent hunting season four persons were arrested in North Carolina with 45 ducks in their possession, and four in New Jersey with 53 ducks.

Baited Ducks.--Three cases involving the taking of wild ducks by means of bait on Sauvies Island, off the coast of Oregon, were terminated in the Federal court at Portland, December 10, when the defendants pleaded guilty. Fines of \$5 were imposed in each case.

Killed Doves in Close Season.--Charged with killing 10 mourning doves in close season, a defendant was arraigned in Federal court at New Orleans, La., December 10 and on plea of guilty was fined \$50.

Transported Ducks in Close Season.--A defendant charged with possessing and transporting wild ducks in close season was placed on probation for six months on December 7, when his case was heard in Federal court at Elizabeth City, N. C.

Killed Too Many Sora.--Pleading guilty to a charge of exceeding the 25-bag limit on sora, a defendant was fined \$20 in Federal court at Camden, N. J., on December 11. His bag contained 38 birds.

Hunted in Close Season.--A hunter in Oregon, arrested December 27 on a charge of hunting wild ducks in close season, when tried in State court, was fined \$25 and sentenced to jail for 12 days.

Waterfowl Baiting Alleged.--Four cases in which the taking of waterfowl by means of bait is charged have been filed in the Federal Court for the Southern District of Illinois. Several other cases alleging similar offenses also are to be filed in that court.

Hunted on Game Refuge.--While hunting on a State game refuge in Nebraska, a hunter was arrested by a State and Federal officer. Upon arraignment in State court at Keystone, Nebr., he pleaded guilty and was fined \$50 and costs of \$7.

Hunted Sandpipers.--On December 5 a State and Federal warden found two men east of Lubbock, Tex., illegally hunting sandpipers. After an auto chase of 3 miles the two men were arrested with two sandpipers in possession. Arraigned in State court they were fined \$22 each.

Coot Cases Terminated.--Among cases successfully prosecuted recently in Federal court in Louisiana were six for the illegal possession of 167 coots, and three that involved the possession of 22, 25, and 55 coots, respectively. Three other cases, involving persons who had exceeded the daily bag limit on coot, have been reported from Louisiana. These persons are alleged to have had 22, 25, and 46 birds, respectively.

Duck Seller Jailed.--Pleading guilty to one count of an information charging the sale of four wild ducks, a defendant arraigned in Federal court at Duluth, Minn., December 12, was sentenced to 8 months in jail. Six months of the sentence were suspended and the defendant placed on probation three years.

Importations

Rare Animal Imported.--A giant panda (Aeluropus melanoleucas) was imported from Shanghai, China, on December 18. This animal was captured near the Tibetan border, about 2,500 miles from Shanghai, when it was about a week old. It had to be fed by bottle.

Predator and Rodent Control

Former Hunter Lilly Dies.--Benjamin V. Lilly, one of the most successful lion hunters in the Southwest, died December 16, at a ranch near Buckhorn, Catron County, N. Mex., according to a report received by the Bureau. He was a hunter for the Bureau from 1918 to 1921, and was one of the guides who accompanied Theodore Roosevelt in his hunt through the Louisiana canebrakes. He collected many specimens of wild animals for the Bureau.

While in his teens Mr. Lilly became a free-lance hunter. Loaded with a 60-pound pack, he broke his way through the Louisiana canebrakes in search of game. His fame as a "sure shot" spread through Louisiana, Texas, Arizona, New Mexico, and northern Mexico. He knew the range country well and occasionally killed as many as three lions in half an hour. His hounds once so enraged a mountain lion that the animal finally attacked him. He was unarmed except for a 4-inch pocket knife with which he killed the lion.

Continue Work in Plains Area.--Following the discontinuance last summer of the Shelterbelt Project in the Plains States, the planting of farm shelterbelts and wood lots is being continued under the Farm Forestry Program. Funds for rodent control on shelterbelts already planted and on areas to be planted in North Dakota, South Dakota, Nebraska, Kansas, and Oklahoma, were provided for the period July 15 to October 15. On October 15, additional funds for rodent control were made available, and in addition funds were provided for

carrying on the work in Texas. These funds are allocated by the Works Progress Administration to the Forest Service, with which the Biological Survey cooperates in conducting control operations.

New Angleworm Named for Garlough.--Under the name of Plutellus garloughi, a new species of earthworm is described by Frank Smith, professor emeritus of the University of Illinois, in the Proceedings of the United States National Museum issued on January 8. The new species is named for F. E. Garlough, director of the Control Methods Research Laboratory of the Survey at Denver, Colo., whose specimens, collected in Oregon in 1931, have been placed in the National Museum.

Predator Control Extended.--District Agent E. A. Gray reports that Salina and Howard Counties in Missouri have extended their cooperative agreements for predatory-animal control for three months, beginning January 1, by providing half the salary of a hunter. Livestock losses from wolves in these counties have been heavy.

Rodent Control Extended in Hawaii.--District Agent Holger G. Hansen, of Honolulu, reports that sugar planters on the Island of Kauai met on December 2 and voted to spend \$20,000 for a cooperative rat control project on the island. The area to be treated includes approximately 50,000 acres of sugar, pineapple, and waste lands with a quarter of a mile buffer strip between the plantations and the mountains. Additional equipment for the preparation of bait at Honolulu has been purchased.

THE SURVEY

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GENERAL NOTES

Addresses Woolgrowers Association.—Chief Gabrielson spoke on Federal wildlife work and rodent and predator control in the Western States at a meeting of the National Woolgrowers Association held at Albuquerque, N. Mex., on January 26 and 27. Explaining the Bureau's wildlife program, he said, "we believe that with the recovery of the western range there will be plenty of room for both livestock and game. We also realize very clearly that big game cannot be allowed to increase indefinitely. Browsing and grazing animals such as deer, antelope, and elk can literally eat themselves into starvation as surely as domestic stock can increase beyond the carrying capacity of either pasture or range. We hope to work with you on these problems to our mutual advantage. My experience in dealing with you in the past makes me exceedingly optimistic of the future."

Discussing the rodent and predator control operations, the Chief pointed out that the total take of predators, particularly coyotes, has grown steadily in recent years except in 1934. In the fiscal year 1936, a total of 73,127 predators were taken and of this number 64,566 were coyotes. Chief Gabrielson also inspected several wildlife areas in the vicinity of Albuquerque after attending the woolgrowers' meeting. He returned to Washington February 4.

On January 14 the Chief attended a banquet meeting in New York City of the American Wildlife Institute. At this meeting he pointed out that there is no room for pseudo-conservationists in the national program for waterfowl restoration. If Americans sincerely want wild ducks to survive, the Chief said they must not ask for favoritism or special privilege, but instead must support the program whole-heartedly.

Associate Chief Speaks at Game Conference.—Mr. Henderson spoke on "Progress in Wildlife Restoration" at the New England Game Conference at Boston, Mass., February 13. "Conservationists," he said, "have a growing appreciation of the sharp reduction that has occurred during the past few years in the numbers of our wild animals and birds and fortunately they also have a better conception of the causes that have brought about the reduction and clearer understanding of the means that must be adopted to renew and build up these resources." In discussing the program for the restoration of migratory waterfowl, he pointed out that conditions on the widely separated refuges throughout the country vary so materially as to call for individual engineering and biological studies. Information gained from these studies helps provide better conditions on the refuges for the wild ducks and geese.

On February 16, Mr. Henderson spoke at the convocation of the Connecticut College, New London, Conn., on "Birds and Bird Students Aided by the Work of the Biological Survey." In this talk he traced the growth of the Bureau and its accomplishments in research and studies pertaining to birds.

ADMINISTRATION

Promoted.---Miss Anna M. Sorber was promoted on February 1 to the position of personnel clerk to fill the vacancy created by the transfer of Mrs. Pauline B. Stretton to the office of the Associate Chief.

Two new employees have been appointed in the pay roll office. They are Miss Dovey R. Overby, who transferred from the War Department, and Mrs. Dorothy O'Melveny, who was appointed from a civil-service list.

PUBLIC RELATIONS

Explains Wildlife Program.---Col. Sheldon explained the Bureau's wildlife restoration program at a meeting of the Northern Illinois Sportsmen's Associations at Elgin, Ill., on February 23. Several hundred persons attended the meeting, which was sponsored by the Kane County Sportsmen Association. On his way to Elgin, Col. Sheldon stopped at Toledo, Ohio, to attend the Great Lakes Sportsmen's and Motor Boat Show.

Reports Successful Exhibit at Toledo Show.---About 50,000 persons saw the fur-animal and bird conservation exhibits of the Biological Survey at the Great Lakes Sportsmen's and Motor Boat Show in Toledo, Ohio, February 11 to 20, reports Howard Zahniser, who conducted the exhibit with the assistance of Leo Monroe, of the Department's Division of Exhibits, and Fred Brint, local game-management agent of the Bureau. Col. Sheldon and Regional Director D. H. Janzen also paid brief visits to the exhibit. Mr. Zahniser reports that the Toledo press and public were much interested in the Survey's program of wildlife restoration, and that the policies and practices of the Bureau have become widely known among the local sportsmen as a result of the work of Game Management Agent Brint. During his stay in Toledo Mr. Zahniser spent two mornings with Mr. Brint in muskrat marshes and waterfowl areas along Lake Erie.

Official Publications.---Copies of which may be obtained from the Division of Public Relations, have been issued as follows:

Rodent control aided by emergency conservation work. By Stanley P. Young, Chief, Division of Game Management. Mimeographed Leaflet BS-54 (revised with illls.), 30 pp. Dec. 1936. Received Jan. 12, 1937.

- Check-list of marsh and aquatic plants of the United States. Compiled by Neil Hotchkiss, Associate Biologist, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-72, 27 pp. Dec. 1936. Received Jan. 18, 1937.
- Some suggestions for bird field study. By May Thatcher Cooke, Junior Biologist, Section of Distribution and Migration of Birds, Division of Wildlife Research. Mimeographed Leaflet BS-76, 6 pp. Dec. 1936. Received Jan. 12, 1937.
- The wild turkey on the Missouri Ozark range. (Preliminary Report). By Harold L. Blakey, Assistant Conservationist, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-77, 32 pp. Jan. 1937. Received Feb. 6.
- Directions for destroying house mice. Prepared in the Section of Predator and Rodent Control, Division of Game Management. Mimeographed Leaflet BS-78, 2 pp. Jan. 1937. Received Feb. 1.
- Vent diseases of domestic rabbits. By F. D. McKenney, Associate Veterinarian, and J. E. Shillinger, Senior Veterinarian, in Charge, Section of Disease Control, Division of Wildlife Research. Mimeographed Leaflet BS-79, 4 pp. Jan. 1937. Received Feb. 1.
- Feeding and caring for squirrels. Prepared in the Section of Fur Resources, Division of Wildlife Research. Mimeographed Leaflet BS-80, 2 pp. Jan. 1937. Received Feb. 1.
- Mink raising. Prepared in the Section of Fur Resources, Division of Wildlife Research. Mimeographed Leaflet BS-82, 8 pp. Jan. 1937. Received Feb. 1.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Bell, W. B. What our Government is doing for the wild creatures. Children of Amer. Revolution Mag. 27 (1): 26-28, Jan. 1937.
- Gabrielson, Ira N. Floods and wildlife. Sci. Amer. 156: 100-102. illus. Feb. 1937.
- Kelso, Leon. (With Estelle H. Kelso.) Christmas bird census, December 1936. Bird-Lore 39: 45. Jan./Feb. 1937.
- Mills, E. M. Protecting trees from deer. Penn. Game News 7 (6): 20-21, illus. Sept. 1936. (Reprinted from Amer. Fruit Grower 51 (3): 7. Mar. 1931).
- European and American methods of rodent control. Extermin. Log 5 (1): 12-14. Jan. 1937.
- Nelson, A. L., and Greenfield, Ray. Some notes on the summer birds of Camp Lee, Virginia. Raven 7 (11 and 12): 1-7. Nov./Dec. 1936.
- Oberholser, H. C. The season (ornithological): Washington (D. C.) region. Bird-Lore 38: 306-307. July/Aug. 1936.
- Soderberg, Raymond. Waterfowl restoration program of the Biological Survey. Bird-Lore 38: 279-286, illus. July/Aug. 1936.
- Zahniser, Howard. In February--William Bartram. Nature Mag. 29: 71. Feb. 1937.

Press and Radio Information and Addresses, copies of which (chiefly in mimeograph) may be obtained from the Division of Public Relations, have been issued as follows:

- Permit required to hunt in Mexico. Press statement 1048-37. Released Jan. 21.
- Antelope at home on the range in two new Federal sanctuaries. Press statement 1059-37. Released Jan. 23.
- Favorite wintering ground of cackling goose becomes Federal waterfowl refuge. Press statement 1050-37. Released Jan. 29.
- Agricultural conservation program encourages planting for wildlife. Press statement 1115-37. Released Feb. 2.
- Sportsmen spend nearly \$10,000,000 in a year for licenses and stamps. Press statement 1148-37. Released Feb. 9.
- North Dakota youths work as observers on wildlife sanctuaries. Press statement 1200-37. Released Feb. 23.
- Pintail banded in U. S. killed in eastern Asia. Clip Sheet No. 970. Released Jan. 31.
- Cover for wildlife. Radio release. Farm Flashes. Feb. 11.
- Flood time for wildlife too. Radio talk by Howard Zahniser, in charge, Current and Visual Information. Conservation Day Program, National Farm and Home Hour, Jan. 29.

WILDLIFE RESEARCH

Field Leaders in Conference.--Following the meeting of the Second North American Wildlife Conference, a conference of field leaders of the Division of Wildlife Research will be held at St. Louis, Mo., March 5 to 8, the program for which has been announced by Dr. Bell, Chief of the Division.

Subjects to be discussed at the morning session of March 5, with Dr. Bell as chairman, are as follows: Bureau aims and policies, Chief Gabrielson; personnel matters, Associate Chief Henderson; administrative, fiscal, and business procedure, S. C. Moore. Dr. Jackson will act as chairman at the afternoon session at which the following subjects will be discussed: Work of the sections, Dr. Bell; the place of food habits in the research program, Dr. Clarence Cottam; the place of fur bearers in the research program, Frank G. Ashbrook; the place of disease studies in the research program, Dr. J. E. Shillinger; our waterfowl refuges and their importance in waterfowl restoration, F. C. Lincoln.

The program for the morning session of March 6 with Dr. Cottam as chairman is as follows: Standardizing cover types, Leo K. Couch; methods of estimating bird populations, Wm. H. Marshall; a demonstration area in operation, C. M. Aldous; farm-game species and farmer-sportsman

relationships and cooperation, J. Paul Miller; wildlife problems in need of research, Dr. L. E. Hicks. Mr. Lincoln will act as chairman at the afternoon session for which the following program has been arranged: Wildlife courses in colleges and progress in their development, Dr. Walter P. Taylor; field notes and reports, Arnold L. Nelson; material for publication, Dr. Jackson; cooperation and public relations, Dr. Bell. Howard Zahniser, of the Division of Public Relations, will be present and participate in a discussion of the last two subjects.

Under the guidance of Harold L. Blakey, the conference members will begin a two-day field excursion at 8 o'clock in the morning of March 7 to various game management areas in Missouri.

Wildlife Surveys

Studies Blue-winged Teal in Mexico.--Logan J. Bennett returned January 16 to his official station at Ames, Iowa, after some study of the migratory waterfowl situation in Mexico. While there he continued his research on the blue-winged teal and was successful in obtaining information as to flocking habits, sex ratio, food habits, time of nuptial plumage change, initiation of courtship and mating, start of spring migration, migration routes in Mexico, association with other birds, type of water areas frequented, and extent of marketing. In addition, he obtained some information on the predators of teals.

Mr. Bennett also reports the organization of a Rural Young Peoples Organization in Iowa for persons 21 to 30 years old, that is, between the ages for activity in 4-H Club work and adult Farm Bureau work. At present there are about 15 county groups, and 70 percent of their membership has voted to include some form of wildlife conservation in their programs. Several groups are interested in taking up wildlife conservation as a definite project. In Mills County a wildlife conservation project was set up by Thos. G. Scott, an assistant at the Iowa Unit. The young people in this county have met with a wildlife specialist at a field short course to study wildlife management. During these meetings arrangements were made to obtain the cooperation of the local Soil Conservation Camp and the Fish and Game Commission. The group has also selected a section of land to be included in a game-management area for demonstration purposes. Established practices that will be demonstrated on the area will practically get county-wide application as the members plan to meet on each others' home farms to put the practices into effect.

Inspects Southern Appalachian Forests.--Inspections of the Southern Appalachian forests were made by Leo K. Couch late in January and the first week in February. He visited the State and Federal cooperative game management units on the Cherokee National Forest in Tennessee and the four

units of the Chattahoochee National Forest in Georgia, and inspected the deer stocking program, the wild boar area on the Cherokee Forest, timber cutting operations, stand-improvement work, grazing problems, road construction, recreational developments, and other E. C. W. projects related to wildlife food and cover.

Mr. Couch also visited sample areas on the Pisgah National Forest to study the development of roads and the deer and wild turkey situation. While there he investigated deer-trapping operations, possible new areas for cooperative game management, game-protection organization, and the effect of timber stand improvement on wildlife habitats.

Give Radio Talks.---Dr. Walter P. Taylor, leader of the Texas Cooperative Wildlife Research Unit, gave the following addresses over Station WTAW: "Soil Conservation and Wildlife Conservation," December 2; "The Varmint Question," December 9; and "A Conservation Job for the New Year," December 30. Valgene Lehman, an assistant of the Texas Unit, gave the following radio addresses: "Quail Hunters Quit Hoping," December 16; and "Are Hawks to Blame?," December 23.

Heads Alabama Research Unit.---Dr. Allen M. Pearson has been transferred from the Soil Conservation Service to the Biological Survey to take over the leadership of the Alabama Research Unit at the Alabama Polytechnic Institute at Auburn. He succeeds Harold S. Peters, who has been assigned new duties in the Section of Distribution and Migration of Birds.

Mr. Peters reported that during January experimental dove trapping work was conducted in the vicinity of Dothan and Slocumb, Ala., but that warm weather and abundant natural food made trapping difficult. It was also too warm for farmers to butcher their hogs, which were allowed to run in the peanut fields. In these fields the hogs uncovered additional food for the doves. An electric fence controller for keeping hogs and cattle out of the trapping area was installed and connected with a single strand of wire. The charged fence kept out the large hogs, but the smaller ones were able to get under the wire and eat the bait under the dove nets.

Allan G. Watkins, an assistant at the Alabama Unit, who was conducting the trapping work, has joined the Forest Service and has been succeeded by M. J. Westfall, Jr., of Orlando, Fla., who has been given a temporary appointment. The first return record of one of the approximately 470 doves banded last summer and this winter has been received. The bird was shot by a hunter about ten miles from where it was banded.

Start Deer Experiment.---Arthur S. Einarsen, leader of the Oregon Research Unit, reports that 9 experimental plots have been set up on the Murderer Creek deer-problem area to show the use deer make of different grazing areas. The plots include land on which grazing has been controlled, reseeded range land on which native seed was used, and land on which seed has been introduced to improve grazing. The entire experimental area,

100 by 200 feet in size, is divided into 8 plots, 25 by 100 feet. A check plot, 25 by 100 feet, where general range conditions prevail, is outside the fenced area. During the past summer and fall deer browsing on juniper has been very noticeable. This indicates that this food is eaten throughout most of the year and not as a last resort in winter. Tests on the nutritive value of juniper for deer are being conducted by Dr. Haag, of the Oregon State Agricultural College.

Domestic Animal Census.--D. W. Lay, an assistant at the Texas Research Unit, interviewed 24 negro tenant farmers at the Walker County courthouse recently and learned the number of cats, dogs, and hogs they have on their farms. Census notes had been made previously of these animals on a few negro farms in the county. These census figures and those obtained by Mr. Lay at the courthouse indicate that the average negro farm tenant family in the county has one cat, one dog, and two to three hogs. As few of these animals are well-fed, their foraging in fields and woods may have a serious effect on the wildlife ecology of the county.

Mr. Lay has also completed maps of the 3,272 acres of land censuses for quail in various parts of Walker County. There are 1,300 farm tenant families in this comparatively small county, and about one-third of them are moving to other farms this winter. Their economic status is regarded as deplorable, and until they can acquire enough productive land, farm fertility and farm wildlife in the affected areas will probably tend toward depletion. Historical notes that have been uncovered indicate that wildlife was abundant in Walker County in 1828, and that fox hunting was popular as early as 1846.

Visit Mammal Laboratories.--Steward Springer, of Englewood, Fla., conferred at the Section's laboratories and offices January 26 with scientists on mammal problems and offered to cooperate in the wildlife surveys in Florida. David G. Nichols, of Garden City, N. Y., spent several days during the latter part of January in the mammal laboratories working on deer mice of the genus Peromyscus. On February 3 Morton L. Church, of Charlotte, N. C., conferred with Mr. Howell on mammal studies in the Southeastern States. F. Carrington Weems, of New York City, also called at the laboratories recently to confer with E. A. Goldman.

Completes Game Census.--Arthur S. Einarsen, of the Oregon Research Unit, has completed a game census on a 300-acre observation area following the shooting season and found that the kill of Chinese pheasants was more than 47 percent of the total game population. On more unfavorable ground he points out that the kill very likely was even greater.

On the 3,000 acres under management, including the 300-acre observation area, the number of game last year on February 22 was 87; on October 3 before the shooting season it totaled 403, and on November 1 after the shooting season it reached 560. These figures not only indicate a natural increase but also an increase caused by outside shooting pressure. Counts

of different species on February 22, October 3, and November 1, respectively, were as follows: Chinese pheasants, 1, 37, 57; ruffed grouse, 11, 26, 23; sooty grouse, 1, 0, 0; mountain quail, 7, 0, 0; bobwhites, 6, 77, 171; valley quail, 54, 246, 287; jack rabbits, 7, 13, 16, and cottontail rabbits, 0, 4, 6.

Check Number of Deer and Grouse.--C. M. Aldous, leader of the Maine Research Unit at Orono, reports that four graduate students of the University of Maine spent two days recently on two permanent game management plots in Somerset County making a census of deer and grouse. The uncut area showed one grouse to every 12.38 acres and on the cut-over area no grouse were seen. Deer were almost entirely gone from the cut-over area, while on the other area many of their tracks, particularly where the timber cutting was under way, were observed. The students found many weasels on both areas and a limited number of moose signs on the area being cut over.

Food Habits Research

Theo. H. Scheffer Retires.--Following nearly 27 years of continuous service in the Biological Survey, Theophilus H. Scheffer retired February 28 upon reaching the retirement age of 70. He joined the Bureau on July 1, 1910, and since then he has dealt principally with the life histories of small mammals, especially in relation to control problems. Although his work has been in almost all parts of the United States in recent years it has been confined mainly to Washington, Oregon, and California. He is the author and joint author of several Farmers' Bulletins and Technical Bulletins relating to moles, the mountain beaver, pocket gophers, small mammals as bulb pests, and the crested myna. In addition, he has had published numerous papers on the life histories and conservation of mammals in outside media, and before joining the Bureau he made a number of contributions on the classification and distribution of spiders and prepared a textbook on elementary zoology. He also has engaged in some strictly literary writing.

Mr. Scheffer was born at Lamartine, Pa., February 21, 1867, and received his A. B. degree from the Kansas State University in 1895., and his A. M. degree from Cornell University in 1903. From 1895 to 1902 he was a superintendent of schools in Kansas, and from 1903 to 1910 he was an assistant professor of zoology at the Kansas State Agricultural College.

Mr. Scheffer has been an active member of the Pacific Northwest Bird and Mammal Society, and for many years has belonged to the American Society of Mammalogists of which he is a charter member, and the Kansas Academy of Science. He is also a member of Sigma Xi and Gamma Alpha, honorary scientific fraternities.

Mr. Scheffer is the father of a daughter and three sons, and for many years has made his home at Puyallup, Wash. The sons are now employed by the Government--Ted C. is with the Forest Products Laboratory, at Madison, Wis.; Paul M. is with the Soil Conservation Service at Walla Walla, Wash., and Victor has recently been named a junior biologist in the Biological Survey.

Attends Conference on Legislation.--E. R. Kalmbach, of the Denver Food Habits laboratory, recently attended meetings of the Colorado Agricultural Clearing Committee and its subcommittee on wildlife, fish, and game, and as a result of these meetings a draft of a fur-bearer law framed by the subcommittee has been submitted to the Colorado legislature. Mr. Kalmbach points out that such legislation has long been needed in Colorado as it is one of the only two States that do not have laws covering fur animals. He has also conferred with officials of the Forest Service and the State land board on a proposed enabling act for authorizing Federal acquisition of land in Colorado for conservation and allied purposes. As a result of these conferences there have been introduced at the present session three bills, and although they vary, each measure provides the basic authority for acquisition of land by the Federal Government.

Mr. Kalmbach spent January 11 and 12 in Utah, where he gave two talks on avian botulism, one before the Inter-mountain Livestock Sanitary Association, at Ogden, the other before a group of students at the Utah Agricultural College, at Logan. Before the latter group he also outlined the procedure that he found advantageous in making nest studies in North Dakota.

Take Waterfowl Census.--A. C. Martin and Clarence F. Smith left January 26 from the U. S. Naval Academy at Annapolis in Navy airplanes to observe waterfowl. Mr. Martin flew over the upper half of the Chesapeake Bay, while Mr. Smith took an inventory of waterfowl along the Potomac and Patuxent Rivers and on the Chesapeake Bay between the mouths of these rivers. A. L. Nelson, F. H. May Jr., and Cecil S. Williams flew aboard bombing planes from the Naval Air Station at Norfolk, Va., on February 3. Mr. Nelson flew from Roanoke Island southward to New River, N. C., and Mr. May observed conditions on the upper James, York, and Rappahannock Rivers to the head of tidewater, and the adjacent shore of Chesapeake Bay. Mr. Williams took the route over Back Bay, Currituck and Albemarle Sounds, and Alligator River. Schedules planned for these trips were postponed several times because of bad weather and poor visibility.

Studies Duck Propagation.--Cecil Williams went to New York City on February 10 to confer with officials of the Flanders Club, and on the following day visited the club property on Long Island, to study methods used there in propagating black ducks.

Detailed to Washington.--Johnson Neff, assistant biologist at Sacramento, Calif., arrived in Washington on February 1 for a month's detail at the Food Habits Laboratory. He and other members of the Washington staff will do experimental work on starling control.

Distribution and Migration of Birds

Addresses Bird Banding Association.--Frederick C. Lincoln left Washington on January 21 to attend the annual meeting of the Northeastern Bird Banding Association, in Boston. He spent January 22 at the Museum of Comparative Zoology in Cambridge, in consultation with James L. Peters, Prof. Henry Bigelow, and others.

The meeting held at the University Club in Boston began on the morning of January 23 and lasted all day. Mr. Lincoln said this was one of the best attended ornithological meetings he recalls. More than 600 persons were present. After a brief business meeting Mr. Lincoln opened the program with a report on the progress of the banding work, and upon noticing a large number of members of the Massachusetts Sportsmen's Association in the audience, he supplemented his comments with a brief statement on the status of migratory waterfowl. At the conclusion of the evening meeting Mr. Lincoln proceeded to Cohasset, Mass., with President L. B. Fletcher and Secretary Charles B. Floyd of the association. In company with these officers and with Wendel P. Smith, State ornithologist of Vermont, he inspected the State Reservation at Plum Island on January 24.

Waterfowl Investigations in Mexico.--After failing to establish headquarters at Tampico, Mexico, because heavy rains made roads impassable, Associate Biologist Charles E. Gillham and Collaborator Luther C. Goldman have moved their headquarters to Brownsville, Tex. From Brownsville they expect to reach important waterfowl areas on the gulf coast and in the northern part of the interior of Mexico. But even from that city they have traveled over roads deep with mud and at times found it necessary to abandon their car and proceed by train.

In the vicinity of Torreon, Coahuila, in marked contrast the two men found lakes and marshes dried up, and to quote Mr. Gillham these areas had "about as many ducks as the Washington zoo." In the region of Monterey, Nuevo Leon, they did, however, find numerous waterfowl at the Don Martin dam, a large irrigation project. Rains and fogs on the gulf coast seriously interfered with investigations of the Laguna Madre Austral, but they were finally able to get some information concerning this area and the Tamaihus Lagoon south of Tampico. The former region especially is an important one, but is virtually inaccessible and little is definitely known of the waterfowl that use it in the winter.

The western party has been divided with Associate Biologist L. J. Goldman continuing his investigations in the States of Guanajuato, Hidalgo, San Luis Potosi, Jalisco, Tlaxcala, and Morelos. He is concentrating his investigations in the Valley of Mexico, Toluca, and Lerma, while Field Assistant Frank Colcord is working north along the coast through Sinaloa and Sonora. Recent reports from Mr. Goldman state that he has found nothing to indicate a further decrease of waterfowl, and Mexicans have informed both men that there is a definite increase this year over 1936.

Returns from Banded Birds Reported.--A pintail banded March 7, 1934, at Ellinwood, Kans., was killed about January 14, 1937, at El Tequezquite, Yurecuaro, Michoacan, Mexico; a blue-winged teal banded September 25, 1936, at Lakin, Kans., was killed January 22, 1937 at Otatitlan, Vera Cruz, Mexico; a blue-winged teal banded October 10, 1936, at Avery Island, La., was shot January 18, 1937, at Remates, Pinar del Rio, Cuba; a herring gull banded June 20, 1936, at Spider Island, Door County, Wis., was found dead about January 7, 1937, at Mariel, Pinar del Rio, Cuba; a herring gull banded June 28, 1936, at Sugar Isle, Lake Huron, Mich., was found dead January 21, 1937, at Puerto Barrios, Guatemala, Central America; a common tern banded May 26, 1936, at Tern Island, Chatham, Mass., was shot about January 25, 1937, at Manzanilla, Trinidad, British West Indies; two evening grosbeaks banded on October 12, 1933, and April 8, 1935, at Sault Ste. Marie, Mich., were trapped and released on January 3, 1937, at Milford, N. H.; a dowitcher banded on August 26, 1934, at Wantagh, Long Island, N. Y., was shot August 8, 1936, in Harrison Swamp, St. Lucy, Barbados; a starling banded December 29, 1935, at Pulaski, Tenn., was found dead January 11, 1937, at Ottawa, Ontario; a roseate tern banded June 29, 1936, at Tern Island, Chatham, Mass., was found dead about November 1, 1936, at Puerto Colombia, Colombia, South America; a barn owl banded April 30, 1929, at Escondido, Calif., was recovered August 31, 1936, at Temecuala, Calif.; a starling banded at Washington, D. C., March 23, 1928, was captured alive July 8, 1936, at Mt. Vernon, N. Y.; two geese, one a lesser shown banded August 2, 1934, at the Bay of Gods Mercy, Southampton Island, Keewatin, Northwest Territories, and a blue goose banded November 12, 1933, at Avery Island, La., were killed in May 1936 at Albany, near Moosonee, Ontario; a brown thrasher banded May 20, 1929, at Demarest, N. J., was trapped and released at the same station on June 18, 1936; a Shufeldt junco banded August 2, 1934, at Barkerville, British Columbia, was trapped and released February 4, 1935, in the Grand Canyon National Park, Ariz.; a chimney swift banded September 28, 1930, at Soddy, Tenn., was captured alive on its nest with two young birds on July 7, 1936, at Chatham, Mich.; a chimney swift banded October 5, 1935, at Hattiesburg, Miss., was captured July 15, 1936, at West Townsend, Mass.; a mourning dove banded August 21, 1927, at Tiffin, Ohio, was shot in December 1934, at Tamozola, Oaxaca, Mexico (this record was just recently reported); a cedar waxwing banded March 24, 1935, at Modesto, Calif., was killed by an automobile August 9, 1936, between Mission and Dewdney, British Columbia; a mallard banded November 12, 1927, at Moiese, Mont., was shot about November 23, 1935, in Gooding County, Idaho; a screech owl banded May 18, 1924, at Buena Park, Calif., was killed in the same locality October 12, 1936; a western red-tailed hawk banded December 12, 1924, at Hamilton, Greenwood County, Kans., was shot November 28, 1936, at Calvin, Okla.; among the 21,500 chimney swifts banded in the fall at Auburn, Ala., by Harold S. Peters, were recoveries of banded birds at Kingston, Ontario; Mont Clare, Pa.; Phoenixville, Pa.;

George School, Pa.; New Paltz, N. Y.; Charleston, W. Va.; and Chattanooga, Tenn. Among chimney swifts banded in Memphis, Tenn., during the fall of 1936, were recoveries of birds at Fairfield, Iowa; Kingston, Ontario; Quincy, Ill.; Water Valley, Miss.; and Lafayette County, Mo.

Band Exhibit on Display.--An exhibit consisting of a series of bird bands from North America and 30 foreign countries has been completed and is on display in Mr. Lincoln's office. A map showing the various countries carrying on birdbanding operations accompanies the exhibit.

Fur Resources

New Rabbit Nest Boxes Keep Young Warm.--During January the temperature in the various units at the U. S. Rabbit Experiment Station, Fontana, Calif., dropped to 21 and 20 degrees several times. The low temperatures, however, have had little, if any, effect on the experimental work. Some breeders living in the vicinity of the station reported heavy losses, one reporting a loss of 91 percent of the litters kindled during the last three weeks of the month, which was caused principally by inadequate bedding in large nest boxes. The new nail keg nest boxes designed by the station staff were found satisfactory under the low-temperature conditions. Their shape keeps the litter together and helps protect the young in cold weather.

Director George S. Templeton reports that the orange crop on the station property is a total loss. Visitors at the station during January included persons from points as remote as Lucknow, India; Fairbanks, Alaska, and Rancagua, Chile, in addition to those from California, Idaho, Illinois, Michigan, Missouri, Nebraska, Ohio, Washington, West Virginia, and Wyoming. More than the usual number of commercial rabbit breeders also called at the station last month for advice on feeding.

Mink Shed Moved.--Due to the building activity at the U. S. Fur Animal Experiment Station at Saratoga Springs, N. Y., the mink shed has been moved and during the operation the minks were housed in another building. Contrary to the general belief that this would be harmful, Director Bassett reports that neither the test nor control animals have shown any ill effects, the only noticeable change in their habits being that they ate slightly less food. Twenty-four additional individual pens for minks were built during January. A large quantity of the lumber and all the wire used in these pens had been salvaged from marten pens that were torn down last summer.

Russian Representative Visits Fur Station.--Ivan Larchenko, of a New York trading corporation, visited the Fur Animal Station, January 19, 20, 21, and 22. He was formerly in charge of the Soviet fur farm, and at the Bureau's station he obtained information on the rations fed, methods of handling the animals, production, and equipment.

Gives Talks on Furs.--On January 11 Chas. F. Bassett, director of the Fur Animal Station, addressed about 75 members of the American Association of University Women at Saratoga Springs, N. Y., on "Fascinating Facts about Furs;" on January 18 he spoke at a meeting of the Rising Sun Masonic Lodge, on the "United States Fur Animal Experiment Station;" and on January 21 he talked on the "Romance of Fur" before a study group of the Ladies Aid Society of the Methodist Church, illustrating certain points in his talks with several specimens of furs.

Disease Control

To Study Waterfowl Diseases.--Dr. Don R. Coburn reported for duty at the Bear River Migratory Bird Refuge, Brigham, Utah, on January 4, to take charge of the disease control laboratory that is to be established at this refuge. He will carry on an extensive research on the diseases of migratory birds. Dr. Coburn was formerly with the Michigan State Conservation Department, and was graduated from the School of Veterinary Medicine at the Michigan State College in 1924. He has had wide experience in disease research, particularly on the diseases of deer. His published papers include one on "A Field Test for Pullorum Disease", and another on "A Comparison of the Rapid and Slow Tests for Bang's Disease."

Junior Veterinarian.--Dr. Earl R. Quortrup has been appointed junior veterinarian and will report for duty April 1 as assistant to Dr. Don R. Coburn at Brigham, Utah. Dr. Quortrup was formerly employed by W. B. Coleman, of the White Oak Quail Farm, Richmond, Va., and obtained his veterinary degree at the Texas Agricultural and Mechanical College last June.

Deer Problem Before Court.--Litigation involving the right of the State Livestock Sanitary Board of Florida to destroy deer that are infected with cattle fever ticks has reached the State Supreme Court. Reports of investigations made on this problem by Dr. F. D. McKenney were used in preparing a brief for the supreme court, which is expected to give a decision early in March.

LAND ACQUISITION

Attends Court in Nebraska.--Mr. Dieffenbach recently spent several days at Valentine, Nebr., attending court in connection with cases involving the acquisition of land for the Valentine Migratory Waterfowl Refuge.

Transfers.--Harold Vogel, of the St. Louis district, has been transferred to the Washington office, where he will be employed as assistant engineering aide.

Return from Field Work.--Elmon Radway, assistant land valuation engineer, has returned to the Washington office after completing a reconnaissance examination in South Carolina. Fred R. Kessler, assistant

land negotiator, has returned after conducting negotiations on the Montezuma area in New York.

MIGRATORY WATERFOWL

Relief Labor Creates Large Artificial Lake.--M. O. Steen, project administrator, who is directing the W. P. A. development work on refuges in North Dakota and Montana, has submitted an interesting report on Lake Ilo, one of the North Dakota easement refuges being developed with W. P. A. labor. He says:

"In the shadow of the Killdeer Mountains, in western North Dakota, an outstanding conservation project has been made possible through the cooperation of the Works Progress Administration and the Bureau of Biological Survey. Lake Ilo, as this project is known, is on Spring Creek in Dunn County, near Dunn Center. When completed, this will be the largest artificial lake in the State to be constructed entirely by W. P. A. labor.

"Approximately 1,560 acres will be inundated, and slightly more than 9,000 acre-feet of water will be impounded behind a huge dam containing approximately 130,000 cubic yards of earth, which, with the aid of 240 relief clients and considerable equipment provided by Dunn County, was put in place in less than 60 days. Four large tractors, two elevating graders, two grading blades, and an average of 25 hydraulic dump trucks were used. The spillway will be a reinforced concrete structure, 125 feet wide with a maximum drop of 27 feet. When completed, the project will include seven islands, three diversion ditches, three miles of road, twelve miles of barbed-wire fence, a ranger's cabin, and an observation tower. The development of a park and swimming beach also is contemplated.

"Lake Ilo will literally be an oasis in the desert, since it is in a section where no natural lakes exist. The lake will serve a territory of several thousand square miles, providing the local residents with swimming, boating, fishing, and other forms of recreation they now do not enjoy. In addition, it will assure them a permanent water supply in times of drought. Lake Ilo is more than wildlife refuge; it is a veritable Godsend to a drought-stricken region that formerly had no comparable water area within a radius of 200 miles."

Traces Beaver History in Oregon.--While in the Washington office recently, Stanley G. Jewett, superintendent of the Malheur Migratory Bird Refuge, reported that early in January a thriving beaver colony was found along a small stream on the refuge. He reports this discovery in the following historical account of beavers in the Flitzen River valley:

"The first written record of the white man penetrating into southeastern Oregon was in 1826. During the fall of that year Peter Skeene Odgen, of the Hudson's Bay Company, with a little band of trappers found the beaver abundant along most of the streams from the

Columbia River south into the Klamath country. The trappers camped at the western edge of what is now the Malheur Migratory Bird Refuge. During the summer of 1877 two brothers built a sod house at a large spring on the south side of Malheur Lake and occupied it for a time while trapping beavers and other valuable fur animals. From that year on the streams of the Harney basin were trapped continuously until the beavers were reduced to a pitiful remnant of their former abundance.

"On some of the larger stock ranches a feeble attempt was made by the owners to protect these interesting and valuable animals and this attempt, lax as it was, probably saved the beaver of the Blitzen River from extermination. During the summer of 1935, when the Biological Survey acquired the once famous P Ranch as a waterfowl refuge, a few beavers were found scattered thinly from Malheur Lake up stream for about 35 miles, but nowhere did they seem to have established a colony or a community center.

"With the added protection given these naturally gregarious animals, they are becoming more accustomed to the presence of man. During January a fine, thriving, and very active beaver colony was found along a small stream that was once a part of the east-side irrigation ditch south of the old P Ranch buildings. On January 16 about 10 inches of snow covered the ground and the stream was partly frozen. Within the past few weeks the beavers have cut and felled several large willows, up to 6 or 8 inches in diameter, trimmed off most of the branches, and built several substantial dams in the stream. The fresh snow was well tracked, and this new colony of several animals appeared to be in fine shape to endure a long continuous cold snap.

"In the vicinity of the colony there are extensive tracts of willows and alders, both excellent beaver food, and with complete protection this colony should prosper and increase to the point where it will serve as an excellent field laboratory for visiting biologists."

Active in Flood Relief Work.---During the recent floods of the Ohio and Mississippi Rivers and their tributaries, considerable rescue work was done by refuge employees and members of C. C. C. camps in the vicinity of the White River and Big Lake Refuges in Arkansas.

Steven B. Crossley, reservation protector of the Big Lake Refuge, reports that his son operating a motor-powered canoe assigned to this refuge rescued 609 persons from the flooded area from January 24 to January 29. Mr. Crossley using a larger motor boat hauled 6,000 sacks for the relief workers engaged in building levees on the west side of the refuge.

Members of the three C. C. C. camps on the White River Refuge also were active in flood-relief work. Using their motor boats, tug boats, barges, and trucks, the C. C. C. boys transported hundreds of refugees to safety. On February 3, one of the camps cooked the meals for 125 refugees near St. Charles.

W. P. A. Development Work to be Continued.--The continuation through February of W. P. A. development operations on refuges in North Dakota, South Dakota, Montana, Nebraska, Oklahoma, Louisiana, Wisconsin, and Wyoming was assured by a recent additional allotment of \$95,450. This makes a total allotment of \$1,527,709 by the W. P. A. to the Biological Survey specifically for refuge-development purposes.

Emperor Geese Observed on Tule Lake.--Refuge employees on the Tule Lake Bird Refuge, Calif., report that during the current fall migration several emperor geese were observed mingling with snow and cackling geese on the refuge. Occurrence of this species as far south as Tule Lake is unusual, although in the winter of 1932 a flock was authentically reported to be on the refuge. Refuge employees also report an increased number of Ross's geese on the refuge this winter.

Speaks at Chamber of Commerce Meeting.--Wallace M. Leonard, junior refuge manager at the Tule Lake Bird Refuge, Calif., spoke on February 8 before the Tule Lake Chamber of Commerce on the new checking system introduced on Tule Lake last fall. He said 1,000 sportsmen took 3,600 ducks and geese and 3,000 pheasants on the first day of the hunting season. The president of the Chamber of Commerce praised the Clear Lake C. C. C. Camp for improving roads in the vicinity of the Tule Lake Refuge.

Large Hay Harvest on Lacreek.--Chandler R. Young, junior refuge manager of the 6,599-acre Lacreek Migratory Waterfowl Refuge, S. Dak., reports that during the 1936 season, 628 tons of hay were harvested on this refuge by farmers to whom permits had been issued as a drought-relief measure.

Inspects Equipment at St. Marks.--R. O. Gustafson, of the Section of Restoration and Development, returned February 17 from a brief trip to the St. Marks Refuge, Fla., where he inspected the operation of heavy equipment now in use there.

Detailed to Washington.--John J. Lynch, biologist, with headquarters at Amherst, Mass., was detailed to the Washington office on January 28, to assist in setting up a planting program for the migratory waterfowl refuges and in planning a future refuge reconnaissance program for the Division.

John H. Steenis, assistant refuge manager of the Des Lacs Migratory Waterfowl Refuge, Kenmare, N. Dak., arrived in Washington on February 10 for a month's detail. While here, he will assist in developing a standardized system of mapping types of food and cover plants on the refuge areas.

Stanley G. Jewett, superintendent of the Malheur Migratory Bird Refuge, Burns, Oreg., arrived in Washington on February 11, to confer with Bureau officials and other agencies on the acquisition, administration and development problems of the Malheur Refuge.

Personnel Changes.--With the transfer of George Benson to the position of reservation protector at the Malheur Refuge in Oregon, Thomas Horn, formerly of the Division of Game Management, assumed the duties of refuge manager of the Deer Flat Refuge, Idaho, on February 16. The appointment of John Hopkins as an agent at the Okefenokee Wildlife Refuge, Ga., was approved on February 1. Mr. Hopkins' headquarters will be at Waycross, Ga. The transfer of George E. Mushbach to the Wichita Mountains Wildlife Refuge, Okla., where he will be superintendent of the Refuge, was effected on February 1. His duties as superintendent of the Bear River Refuge, Utah, have been taken over by Vanez T. Wilson.

GAME MANAGEMENT

Addresses Pennsylvania Sportsmen.--On February 10 Mr. Young spoke on the enforcement of the Migratory Bird Treaty Act regulations at the annual meeting at Philadelphia of the Pennsylvania Fish and Game Protective Association. He also explained the developments on the Charles Sheldon Antelope Refuge and other big-game ranges and preserves. More than 900 persons attended the meeting.

Names Wolf After Young.--In an article in the current issue of Journal of Mammalogy, E. A. Goldman names a new subspecies of wolf found in the southern Rocky Mountain region after Mr. Young (*Canis lupus youngi*). Mr. Goldman also names another new subspecies after Tappan Gregory, of Chicago. This wolf was successfully photographed in October 1934 during a cooperative expedition into Louisiana by the Biological Survey and the Chicago Academy of Sciences. The expedition was led by Mr. Young and the photographic work was directed by Mr. Gregory. Much information concerning the new subspecies was obtained and included by Mr. Gregory in an article entitled, "Black Wolf of Tensas," published by the Chicago Academy of Sciences. Another new subspecies from southeastern Alaska was described by Mr. Goldman and named after Stokley Ligon, formerly with the Biological Survey.

Game Management Agents and Game Preserves

Harry H. French Retires.--After almost 32 years of continuous Government service, Harry H. French, superintendent of the Wichita Mountains Wildlife Refuge, Okla., retired from active duty on January 31. His Federal service began on September 20, 1905, when he was appointed a forest guard. On November 15, 1905, he was appointed assistant forest ranger, and on May 1, 1906, he became a deputy forest ranger. From September 10, 1906 to November 1, 1906, he was employed as a ranger, after which he became a forest supervisor. In this position he supervised the activities on various national forests, and from July 1, 1926, to August 31, 1934, he was supervisor of the Wichita National Forest and Game Preserve. The area within this preserve was transferred by order of the Secretary of Agriculture on April 1, 1935, to the Biological Survey for administration and was designated as the Wichita Mountains Wildlife Refuge. Meantime Mr. French had received an appointment on January 29, 1935, as an associate land negotiator in the

Survey, and as he was familiar with the work, general conditions, and wildlife on the Wichita area, he was named on June 1, 1935, as superintendent of the refuge. Under his superintendency the development of the refuge has progressed rapidly, and through his efforts the area has received much publicity and attracted many visitors. Mr. French will remain at the refuge several months to collaborate with the Bureau in various activities that are under way there.

George E. Mushbach, superintendent of the Bear River Migratory Bird Refuge, Utah, has been appointed as Mr. French's successor. He has been with the Survey since November 3, 1919, when he was appointed a U. S. game protector. On September 16, 1930, he was appointed superintendent of the Bear River Refuge. Mr. Mushbach has had wide experience in game conservation and in law enforcement activities. As a sportsman and wildlife observer in western States he acquired a broad knowledge of big-game and other wildlife.

Big-game Refuges Established.---The Charles Sheldon Antelope Range, which adjoins and supplements the Charles Sheldon Antelope Refuge, Nev., was established by Executive Order of December 21. It includes an area of 539,000 acres and is to be administered jointly by the Survey and the Grazing Division of the Department of the Interior under the Taylor Grazing Act. This area embraces the winter range of the antelope using the Charles Sheldon Antelope Refuge. The Hart Mountain Antelope Refuge, Oreg., was established by Executive Order of the same date, and comprises 276,000 acres. It includes the fawning grounds and summer range of the antelope and also a considerable extent of their winter range. The Fort Peck Game Range, Mont., was established by Executive Order of December 11, and will also be administered jointly by the Biological Survey and the Grazing Division of the Department of the Interior. This range, extending through five counties, includes an area of 1,011,000 acres, embracing lands that are being acquired by the War Department for the construction of a dam and reservoir in connection with a gigantic project for flood control and prevention of soil erosion. The principal species of wildlife using the area are deer, antelope, and upland game birds.

Antelope Lost at Niobrara Preserve.---Despite special efforts to establish a nucleus herd of antelope in the new pasture in the southern part of the Niobrara Game Preserve, Nebr., disease and coyotes have caused the loss of all but one of the 34 fawns that were obtained last spring. In addition to these losses two adult antelope of the small herd being kept in a restricted pasture north of the headquarters were also killed recently by coyotes. Other losses of big-game that have occurred include an adult white-tailed deer buck, apparently killed in an encounter with a buffalo; a mule deer was found drowned; and a white-tailed deer fawn, which was found dead.

Feed Game Birds at Sullys Hill.--About 25 bushels of grain were put out for game birds during January and early February on and around the Sullys Hill Game Preserve, N. Dak. Tallow has also been placed near the headquarters building for such birds as woodpeckers, nuthatches, and chickadees, and grouse have been appearing on the preserve to feed on buds. During January the temperature on the preserve averaged 10 degrees below zero, and snow averaging 18 inches covered the area.

Deer Increase at Wichita.--Increasing numbers of white-tailed deer have been seen recently on the Wichita Mountains Wildlife Refuge, Okla., according to Harry H. French, former superintendent. He also reports that a large deer believed to be one of the mule deer obtained a few years ago by the State Game Commission of Oklahoma from the Kaibab National Forests, Ariz., was seen recently near the refuge. One of these deer was seen in the refuge near Mount Scott several years ago and was killed later by a resident of Wichita Falls, Tex. The slayer was arrested and fined in court.

Ducks Caught in Cold Spell.--Ducks were forced to leave many rivers, lakes, and streams in Idaho during January because of the extreme cold weather and snow, reports Game Management Agent George M. Riddick. Many birds moved into pig pens, chicken yards, and cattle and sheep feeding grounds after the water in the rivers and other feeding places had frozen over. Because an unusually large number of ducks were caught by the cold weather, feeding operations were begun on an extensive scale by the middle of January. Farmers, sportsmen, and members of gun clubs cooperated with the State Game Department and the Biological Survey in providing food. Most of the ducks fed were in the vicinity of the Snake and Boise Rivers in the southern part of the State. Mr. Riddick reports that the feeding operations were successful as few birds were lost.

Law Enforcement

Forty Violators Punished.--Forty cases involving violations of the Migratory Bird Treaty Act were disposed of by Judge Dawkins in Federal court at Alexandria, La., on January 25, by assessing fines and imposing jail sentences or fining the defendants and suspending jail sentences. Seven persons charged with selling ducks were sentenced to jail for 60 days, and another charged with the same offense was sentenced to jail 90 days and given a suspended sentence of one year on each of the 10 additional counts against him. Two persons charged with killing ducks in close season were each sentenced to 60 days in jail.

Fines and suspended jail sentences were meted out in the remaining cases as follows: Hunting ducks in close season, 7 fines of \$10 and 1 of \$25; killing ducks in close season, 4 fines from \$10 to \$25; killing 1 duck in close season, \$15 fine; possessing 1 duck in close season, \$10; hunting without a stamp, over decoys, killing a wood duck, and using an unplugged gun, \$10.

Four cases of hunting before 7 a. m., fines ranging from \$10 to \$25; hunting before 7 a. m., and using unplugged gun, \$20; hunting doves in close season, \$10; killing a robin, \$5; killing 1 thrush and 1 woodpecker, \$10; killing 2 robins, 1 flicker, and 1 meadowlark, \$10; killing 11 robins, \$15; possessing 12 robins, \$10; possessing 16 robins, 2 flickers, 6 thrashers, and 1 woodpecker, \$10; and possessing 2 wood ducks, 1 robin, and 4 thrushes, \$20.

Draw Stiff Penalties.---Two persons found by State wardens in possession of 517 ducks were found guilty by a jury in Federal court at Sacramento, Calif., and fined \$500 and sentenced to six months in jail in each case. The two were arrested in Butte County, Calif., on December 5, after the wardens found the ducks suspended on wires in a barn. The case was reported to a Federal agent, and on January 13 the men were arraigned in court. Two hunters apprehended near Turlock, Calif., on December 22, with a total of 434 dead ducks also received heavy fines and jail sentences upon pleading guilty on January 19 in the Sacramento court. One defendant was fined \$500 and sentenced to four months in jail, and the other received a \$500 fine and an eight months' jail sentence. On January 11, a hunter was fined \$50 in the same court when he pleaded guilty to a charge of killing a canvasback duck.

Exceeded Bag Limit.---Charged with killing 7 ducks in excess of the daily bag limit a hunter pleaded not guilty when arraigned in Federal court at San Francisco, Calif., on January 8. He was found guilty and fined \$170.

Killed 6 Wood Ducks.---A hunter charged with killing 6 wood ducks in Charleston County, S. C., on November 29, entered a plea of guilty and was sentenced to 90 days in jail by the Federal court at Charleston.

Federal Regulation Upheld.---The Federal regulation not permitting the taking of migratory waterfowl by means of bait was sustained by the Federal court at Springfield, Ill., on February 1, when it found two hunters guilty of violating the regulation. Each hunter received a fine of \$200 and costs of \$50. Another hunter charged with the same offense was adjudged not guilty.

Predator and Rodent Control

Attend Woolgrowers' and Other Meetings.---Albert M. Day, in charge of the Section of Predator and Rodent Control, attended the annual meetings of the Idaho Woolgrowers' Association, at Pocatello, on January 15 and 16; the Utah Woolgrowers' Association at Salt Lake City, January 19 and 20, and the National Woolgrowers' Association at Albuquerque, N. Mex., January 26 and 28. Since stockmen, in recent years have suffered heavy losses

from predators, principally coyotes and bobcats, increased interest in predator control was shown at these meetings. In many areas extra efforts are being made to employ a larger force of cooperative hunters.

Mr. Day also inspected areas in southern Wyoming to provide additional protection for antelope and sage grouse. Plans for continuing the Farm-Forestry program during the remainder of the fiscal year were made at a meeting of the district agents held in the offices of the Forest Service at Lincoln, Nebr., on February 2 and 3. Additional cooperation from the landowners on whose farms the shelterbelts have been planted will be sought, with a view to reducing the cost of controlling jack rabbits and other tree pests.

Predator Hunter John Ligon Dies.--District Agent C. R. Landon reports that Hunter John Ligon died suddenly on December 22. He says that Mr. Ligon was one of the most conscientious hunters in his district and that his efforts resulted in substantial savings to many stockmen. He began working for the Bureau about 10 years ago. About 2 years ago Mr. Ligon accidentally shot himself through the fleshy part of his leg. He consulted a physician and in spite of instructions to rest at least two weeks he began running his trap line the following day. The day before his death Mr. Ligon also made two attempts to start out on his trap line, but because of his weakened condition he was forced to turn back. He is survived by the widow and children.

Rat Control Project Successful.--District Agent John Finley reports that the W. P. A. rat control projects in 12 cities in his district have been successful largely because they have taken into consideration the environmental conditions as well as the removal of rats. In these cities attempts are being made to control the places that harbor rats, and in practically all, the garbage dumps have been covered with earth and new sanitary fills for garbage provided. In many places the garbage situation was responsible for the presence of large numbers of rats. As a result of these projects the garbage disposal systems in these cities also have been greatly improved.

Conduct Wildlife Short Course.--An innovation at the Oklahoma A. & M. College, at Stillwater, was a wildlife conservation and development short course, which was held on January 14 and 15. Prof. C. E. Sanborn, president of the Oklahoma Wildlife Federation, directed the course, and many papers on forestry, soil and water conservation, disease, predator control, law enforcement and other wildlife subjects were presented. The Bureau was represented by District Agent A. E. Gray, Game Management Agent M. H. Boone, and D. W. Kolb, cooperative hunter. Approximately 200 persons witnessed the trap setting demonstration by Mr. Kolb in the stock judging arena, where grass, small trees, and trails had been arranged to represent the natural habitats of wolves, bobcats, and coyotes. A live bobcat, coyote, and wolf were also displayed by the Bureau. Plans are under way to make the short course an annual affair.

Tests Bait on Turkey.--District Agent Louis Knowles, of Mitchell, S. Dak., reports that John M. Hamlet, foreman of the Farm Forestry Program in North Dakota, fed a turkey poisoned oats in an experiment to learn whether turkeys will eat an overdose of the bait used in rodent control in connection with the Farm Forestry Program. The crop of the bird was filled with wheat when it was placed in the pen, and in about half an hour it began eating the poisoned feed. After taking 15 or 20 grains it began to pick and drop the grain, but finally managed to consume the entire 3 ounces that had been placed in the pen. The turkey drank considerable water after the first convulsion and the digestion and passage of the food appeared to be rapid. At the end of the day the bird showed no outward change in condition. On the second day a similar quantity of poisoned grain was placed at the turkey's disposal, but it ate only when driven to the food by hunger. A half ounce of uneaten grain was left in the pen for the next day. On the third day the bird ate only a few grains at a time, and upon being released from the pen it appeared starved and ate large quantities of green grass. Three weeks later it appeared to be in normal condition again.

THE SURVEY

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GENERAL NOTES

Take Part in Wildlife Conference.--Secretary of Agriculture Wallace and Dr. Gabrielson, Mr. Henderson, and other employees of the Biological Survey were active participants in the second North American Wildlife Conference, held in St. Louis, Mo., March 1 to 4. The Secretary spoke on March 1 on the restoration and conservation of the wildlife resources of this continent, and on the last day of the conference Dr. Gabrielson presented a report on the Biological Survey's progress during the year. Many other papers were presented by members of the Bureau. A Biological Survey exhibit on winter feeding was shown, and the Bureau was also represented in a C. C. C. exhibit, which included a diorama showing work on a waterfowl refuge. An outstanding result of the conference was the permanent organization of the General Wildlife Federation with Jay N. Darling as president and Carl Shoemaker as secretary.

Cites Need of Conservation.--Floods and dust storms have brought home to the people of this country that only through "united intelligence in the handling of its resources can we continue to be a great Nation," said Chief Gabrielson on March 25 in addressing a regional conference of the United States Junior Chamber of Commerce at Louisville, Ky. These problems have in the past few years forced the public into a position of "more interest, more understanding" of conservations, the Chief declared, "and have made people realize they are not local problems."

Speaking on "The Present Status of our Duck Problem" at the State game conference held at Columbia, S. C., April 15, Dr. Gabrielson said, "no one should be deceived into thinking that the situation is satisfactory at the present time. We still need more breeding birds. It will require years under the most favorable conditions to get them back, and at any time some great natural catastrophe like a recurrence of drought may cause us to lose much of the ground that we have gained in the past two seasons. Confronted with these facts, I can not see the possibility of immediately lessening the restrictions on the kill. It is only by controlling the kill that we can increase the breeding stock so as to repopulate the marshes." In addition to Dr. Gabrielson, officials of the Bureau of Fisheries and the Soil Conservation Service, State game officials, and other participated in the conference.

Mexican Treaty Extends Bird Protection.--A treaty between the United States and Mexico for the protection of migratory birds and game mammals became effective, following the exchange of ratifications at Washington, D. C., by the two Governments. upon proclamation by President Roosevelt on March 15. It provides Federal protection for 140 species and their subspecies not protected under provisions of the convention with

Great Britain in respect to Canada. By this treaty the authority of the United States over migratory birds while they are in this country now has a dual basis--Canadian and Mexican treaty obligations--and the three countries are now linked in cooperative efforts to extend protection to wildlife in general. Among those present at the exchange of ratifications at the State Department were: Dr. Don Francisco Castillo Najera, Ambassador to the United States from Mexico, Secretary of State Hull, Secretary of Agriculture Wallace, Chief Gabrielson, E. A. Goldman, and Dr. T. S. Palmer.

Organize Wildlife Society.--The Society of Wildlife Specialists formed at the 1936 North American Wildlife Conference was formally organized at the 1937 meeting of the conference at St. Louis, Mo., as The Wildlife Society, and the following were elected as officers: President, Rudolph Bennett, University of Missouri; vice president, Joseph S. Dixon, National Park Service; secretary, Victor H. Cahalane, National Park Service; treasurer, Warren W. Chase, Soil Conservation Service. Although the society is mainly a professional group it will admit associate members who are interested in its objects and activities. It also plans to publish a quarterly organ, entitled The Journal of Wildlife Management, which will be edited by W. L. McAtee, of the Biological Survey. An attempt will be made to publish two issues as volume 1 for the year 1937.

Article on Smith Riley.--Of interest to the many friends of Smith Riley, formerly in charge of the Division of Game and Bird Reservations, who died in Denver, Colo., on August 2, 1936, is an article about him together with a photograph published in the October 1936 issue of the Journal of Forestry (pages 943 to 945). An obituary of Mr. Riley was published in the June-October issue of THE SURVEY. Mr. Riley was appointed an assistant in game conservation under the Biological Survey on July 1, 1922, and later was placed in charge of the Division of Game and Bird Reservations, which position he held until illness forced his retirement on July 31, 1935.

PUBLIC RELATIONS

Mr. Morrison Supervises Philadelphia Exhibit.--Under appointment as collaborator, Lisle Morrison, in charge of Biological Survey exhibits until his retirement last year, was again on active duty during the Philadelphia Motorboat and Sportsmen's show, March 29 to April 3. He was assisted by Leo H. Monroe, of the Department's Division of Exhibits. The display was planned and the installation directed by Howard Zahniser, who also returned to Philadelphia for the last day of the show and supervised the dismantling. The Survey's exhibits occupied 180 running feet of space, and included sets on winter feeding, game management as a farm practice, upland game birds, fur animals, mule deer, white-tailed deer, and mountain lions. The Bureau representatives furnished lists of publications and other information at a "hunters' cabin", which included mounted heads and hides of wild animals. Biological Survey visitors at the exhibit were Mr. Henderson and George Tonkin, regional director visiting Philadelphia on annual leave.

Speaks on Restoration Program.--At a luncheon of the Washington, D. C., chapter of the American Business Club, Howard Zahniser spoke on April 14 on the need for wildlife conservation, and explained the Biological Survey's program and the studies it is carrying on to make an intelligent program possible. As an example of one aspect of the Bureau's scientific work he showed the film entitled, "The How and Why of Birdbanding."

On April 15, Mr. Zahniser spoke at the Polk School in Washington, outlining the reasons for wildlife conservation, and describing the work of the Bureau. He showed again the birdbanding film, and also the one entitled, "Beavers at Home."

Farm and Home Hour Programs Continued.--Continuing the Conservation Day programs on the National Farm and Home Hour, Howard Zahniser on February 26, made the second talk in a series on the Survey's refuge work, entitled "Beginnings of a Federal Bird-Refuge System." The talk dealt largely with the Pelican Island Bird Refuge, Florida. "Pelican Island", he pointed out, "was the first refuge set aside by the Federal Government solely for the use of birds. That was the beginning of the Federal system of bird refuges, a system that is still being extended in a national program to prevent the extermination of any interesting or valuable North American bird."

On April 9, Mr. Zahniser joined with O. J. Murie, of the Division of Wildlife Research, and Morse Salisbury, Chief of the Department's Radio Service, in a Conservation Day discussion on the Survey's field-research work for wildlife protection. Mr. Murie, who was introduced to the Farm and Home audience for the first time, described the Bureau's work in connection with elk conservation, and spoke at length of the purposes and results of studies on the Aleutian Islands Bird Refuge. The discussion has been mimeographed under the title, "A Field Naturalist in the Studio."

Biological Writer Appointed.--Don Bloch, appointed March 22 to the position of biological writer in the Section of Current and Visual Information, is assisting in the preparation of news and magazine articles for information on W. P. A. projects being carried on by the Bureau. After being graduated from the Medill School of Journalism, Northwestern University, Mr. Bloch continued his studies for a master's degree in literature at that institution, and taught subsequently for two years in its department of English. The following two years he was assistant-professor in English and head of the division of journalism at Alabama Polytechnic Institute, Auburn, Ala.; then filled the same office at the University of Tennessee at Knoxville. After five years of active journalism, he joined the Washington (D. C.) Post, as writer of special features and articles for its Sunday magazine. Later he was employed in the same capacity by the Washington (D. C.) Evening Star, for two years. Prior to his appointment to the Biological Survey, Mr. Bloch held a similar position as writer of special articles for the Forest Service.

Temporary Appointments.--Mrs. Charlotte L. Travis, of Virginia, who had been under temporary appointment in the Division of Administration for three months, was detailed to the Editorial Section on April 16, to handle mailing list work during the illness of Miss Hester E. Drayton.

Miss Alice Jean Turkish, of Michigan, recently employed in the United States Treasury, is under temporary appointment in the Section of Current and Visual Information, and is assisting in typing and clerical work.

Official Publications.--Copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Suggestions for combating starling roosts. By E. R. Kalmbach, Senior Biologist, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-81, 17 pp. Feb. 1937. Received March 2.
- Laws and regulations for the administration of the Wichita Mountains Wildlife Refuge, Oklahoma. Service and Regulatory Announcements B. S. 85, 11 pp. Feb. 1937. Received March 9.
- The house rat. By James Silver, Regional Director. Circular No. 423, 19 pp. Jan. 1937. Received March 12.
- Food of the scaled quail. (Preliminary report.) By Leon H. Kelso, Junior Biologist, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-84, 9 pp. March 1937. Received March 23.
- Trapping and transplanting live beavers. By Leo K. Couch, Associate Biologist, Section of Predator and Rodent Control, Division of Game Management. Farmers' Bulletin No. 1768, 18 pp. March 1937. Received Apr. 9.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Aldous, C. M. Notes on the life history and habits of the snowshoe hare. Jour. Mammal. 18: 46-57, illus. Feb. 1937.
- Ball, W. H.; Knappen, Phoebe; and May, F. H. (with Charlotte May.) Christmas bird census--St. Mary's City to Point Lookout, Md. Bird-Lore 39: 45. Jan./Feb. 1937.
- Einarsen, A. S. Salt water peanuts. Sunset Mag. 77 (4): 39. Oct. 1936.
- A vaccination against old age. Sunset Mag. 77 (5): 49-51. Nov. 1936.
- Crabs are always gentlemen. Sunset Mag. 77 (6): 38-39. Dec. 1936.
- Oysters. Sunset Mag. 78 (2): 40-41. Feb. 1937.
- Gabrielson, I. N.; Cottam, C.; Nelson, A. L.; and Smith, C. F. Christmas bird census--Port Tobacco, Charles County, Md. Bird-Lore 39: 45. Jan./Feb. 1937.
- Goldman, E. A. A new canyon mouse of the genus Peromyscus from Arizona. Jour. Mammal. 18: 92-93. Feb. 1937.
- The wolves of North America. Jour. Mammal. 18: 37-45. Feb. 1937.
- A new mountain sheep from Lower California. Biol. Soc. Wash. Proc. 50: 29-32. Apr. 2, 1937.

- Handley, C. O. [A few rare occurrences] Blacksburg, Va. Raven 8 (1): 6-7. Jan. 1937.
- [Whistling swan in Wythe County] Virginia. Raven 8 (1): 6. Jan. 1937.
- Christmas bird census--Blacksburg, Va. Bird-Lore 39: 46. Jan./Feb. 1937.
- Howell, A.H. A reconnaissance of the summer bird-life of Georgia. Oriole 1 (4): 29-32. Dec. 1936.
- A simple method of saving small mammals in the field. Jour. Mammal. 18: 95. Feb. 1937.
- Lay, G. B. Rodent control work in the Southeast. Agr. Leaders' Digest 18 (2): 25. Feb. 1937.
- May, F. H. The food of the fur seal. Jour. Mammal. 18: 99-100. Feb. 1937.
- Nelson, A. L. Following Fox Trails, by Adolph Murie. [Mus. Zool., Univ. Mich. Misc. Pub. No. 32, pp. 1-45. Aug. 7, 1936]. (Review). Jour. Mammal. 18: 107-108. Feb. 1937.
- Peters, H. S. Chimney swift banding in Alabama during the fall of 1936. Birdbanding 8: 16-24. Jan. 1937.
- Sheldon, H. P. Old Man River's geese. Sportsman 21 (1): 23, 90, 91, illus. Jan. 1937.
- Guns and game: Our anniversary; progress in guns, ammunition, and game; the new American system; sport and surgery. Sportsman 21 (1): 83-84. Jan. 1937.
- Guns and game: Upland shooting; game management; spurious weapons; a new book for sportsmen; the touch of genius. Sportsman 21 (2): 74. Feb. 1937.
- Guns and game: A ceremony; Roger's rangers; manufacturer's limitations are necessary to avoid certain disaster. Sportsman 21 (3): 100. March 1937.
- Taylor, W. P. A balanced program. Outdoor Fla. 1 (3): 3, 13, illus. Nov. 1936.
- Zahniser, Howard. In March--Andre Michaux. Nature Mag. 29: 135. March 1937.
- In April--John Burroughs. Nature Mag. 29: 199. Apr. 1937.

Press and Radio Information and Addresses, copies of which (chiefly in mimeograph) may be obtained from the Division of Public Relations, have been issued as follows:

- 55 waterfowl and 4 big-game sanctuaries added in year to Federal chain of refuges. Press statement 1235-37. Released Mar. 4.
- Seney marshes rapidly becoming haven for ducks and geese again. Press statement 1291-37. Released Mar. 15.
- Mexican wildlife treaty put into effect: extends U. S. control over birds. Press statement 1302-37. Released Mar. 17.
- Duck depression checked reports Biological Survey. Press statement 1320-37. Released Mar. 19.
- Wildlife research at 9 colleges working with Biological Survey to be directed by Leo K. Couch. Press statement 1394-37. Released Apr. 5.
- Okefenokee swamp in Georgia becomes U. S. wildlife haven. Press statement 1407-37. Released Apr. 8.

Eleven small refuges bring North Dakota total to 68. Press statement 1409-37. Released Apr. 9.

More bird refuges. Clip Sheet No. 975. Released Mar. 7.

Better hunters needed says Forest Service. Clip Sheet No. 977. Released Mar. 21.

Pelicans back on lake after 10-year absence. Clip Sheet No. 979. Released Apr. 4.

Big game increases. Clip Sheet No. 980. Released Apr. 11.

Ruddy duck foils enemies by submarine maneuver. Clip Sheet No. 981. Released Apr. 18.

Big losses from rats. Farm Flashes. Mar. 20.

Lands for wildlife. Farm Flashes. Mar. 25.

Wild duck comeback. Farm Flashes. Mar. 31.

Wildfowl shot less. Farm Flashes. Apr. 7.

Quality in fox fur. Farm Flashes. Apr. 8.

Beginnings of a Federal bird-refuge system. Radio talk by Howard Zahniser in charge, Current and Visual Information. Conservation Day Program. National Farm and Home Hour, Feb. 26.

Work of the Biological Survey during the past year and plans for the future. Address by Dr. Ira N. Gabrielson, Chief, before the National Wildlife Conference, St. Louis, Mo., Mar. 4.

Conservation. Address by Dr. Ira N. Gabrielson, Chief, before the Junior Chamber of Commerce, Louisville, Ky., Mar. 26.

How many ducks? Radio talk by Frederick C. Lincoln, in charge Section of Distribution and Migration of Birds, Division of Wildlife Research. Conservation Day Program, National Farm and Home Hour, Mar. 19.

A field naturalist in the studio. Radio discussion by Olaus J. Murie, biologist, Section of Wildlife Surveys, Division of Wildlife Research, with Howard Zahniser, in charge, Section of Current and Visual Information, Division of Public Relations, and Morse Salisbury, Chief, Radio Service. Conservation Day Program, National Farm and Home Hour. Apr. 9.

WILDLIFE RESEARCH

Field Leaders in Conference.--A conference of field leaders of the Division of Wildlife Research, with Dr. Bell as chairman, was held at St. Louis, Mo., March 5 to 8. Dr. Gabrielson explained the Bureau's aims and policies, Associate Chief Henderson discussed personnel matters, and S. C. Moore explained administrative, fiscal, and business procedure. Those in charge of the Division's sections told how their work fits in the research program, and several of the field men also reported on progress made on particular projects. At the end of the conference a two-day field excursion to various game management areas in Missouri was conducted by Harold L. Blakey.

Attends Cornell Conference.---Dr. Bell represented the Bureau on the Farm and Home program of Cornell University, Ithaca, N. Y., February 18 and 19, in the absence of Dr. Gabrielson, who was unable to attend. While there Dr. Bell also attended the regional conference of wildlife technicians of colleges and State game departments. On February 18, he reviewed the organization of the Biological Survey and its research program before the conference, and on the closing day of the conference he discussed "Conservation Education and the Biological Survey."

Wildlife Surveys

Find Sage Grouse Missing.---From February 19 to 22, Dr. D. I. Rasmussen leader of the Utah Research Unit, Lee Kay of the Utah State Fish and Game Department, Lyn Griner, a graduate student, and another student made a trip on skis and with a toboggan into the Stinking Springs area east of the reservoir of the Strawberry River to observe sage grouse on their winter range and to study their winter habits. The use of skis and a toboggan was necessary as most of the country was covered with snow three to four feet deep. All supplies for the trip were pulled on the toboggan from the State road camp at Soldier Creek to a camp at an old trapper's cabin. Although in past years large concentrations of grouse were reported in the Stinking Springs area, very few were found on this trip. This indicates that their migrations are influenced almost entirely by the abundance or scarcity of food. The birds that had been in this area early in the winter apparently had drifted to lower country at the time the trip was made.

Feed Deer in Utah.---Dr. Rasmussen and his assistants at the Utah Research Unit spent considerable time during February observing deer on the feeding grounds at the base of a hill just east of the Utah Agricultural College and on a nearby winter range. An average of 700 deer were seen each evening on the feeding grounds. Results of experiments with supplemental feeds are incomplete, but they indicate that the deer find cottonseed cake more palatable than most supplemental feeds, with the beet pulp and molasses mixture second. Cattle grain pellets, special deer cake, linseed meal, and sheep pellets were also fed in the experiments.

On a trip to the Wasatch Game Preserve late in the month a survey was made of conditions and the distribution and numbers of deer. Cooperating with members of the range management department of the Utah Agricultural College, the Research Unit is making an intensive browse study on the census area three miles east of Logan. A detailed reconnaissance based only on the browse on 900 acres was made, and an analysis of these data will probably answer some of the questions concerning forage production and the proper winter carrying capacity. A total of 609 deer were counted on the census area during the regular census, on February 28. This is the largest number to be reported in any of the censuses made there in the last three winters.

Bluejay Helps Feed Quail.--D. W. Lay and H. R. Siegler, assistants at the Texas Research Unit, made a detailed study in Walker County, Tex., last winter on how the bluejay helps make acorns available to quail. Bluejays are abundant in the woodland areas in Walker County, and during the winter season acorns may be of great importance as food to quail. An examination during November and December of 10 stomachs of quail from this county showed acorns present in 5. Through the use of quadrats and field observations the investigators arrived at the following conclusions, which they also presented on March 1, at the Second North American Wildlife Conference at St. Louis, Mo.: (1) Pieces of acorns and acorn cups dropped by bluejays can be distinguished from those dropped by other birds. (2) The number of acorns made available by bluejays as food for quail is sufficient to be of real importance. (3) The number of acorns made available by bluejays as food for quail exceeds by far the number made available by hogs or squirrels. (4) The bluejay is probably the most important agent in Walker County, Tex., in making acorns available as food for quail.

Studies Coyote Relationship to Deer.--At the request of the regional office of the Forest Service, E. E. Horn, stationed at the University of California, Berkeley, Calif., recently made two trips to the Los Padres National Forest to determine the advisability of the Bureau participating in a study of the relationship of coyotes to deer in the Mono basin of the forest. As a result of Mr. Horn's investigations and recommendations plans have been made for a cooperative study of the coyote and deer in the Mono basin. The Forest Service will handle the administrative details of this project and the Biological Survey and the technical phases. Sportsmen asked that the research be undertaken.

Mr. Horn also has summarized data of the field records of the pine plantings on Burney Mountain and Big Springs Brushfields, showing the effect of rabbits, survival of plantings, effect of spraying seedlings with rezyl-strychnine, and various other relationships. Progress reports on the separate projects are being made.

Studies Bobwhite Hybridization.--H. R. Siegler, assistant to Dr. Walter P. Taylor, of the Texas Research Unit, reports that 72 specimens were examined in a recent study of the hybridization of bobwhite quail. Of the 72 specimens studied, 15 were collected in Walker County, 42 were live birds banded on the Research Unit's experimental area, and 15 were skins. Ten of the skins were from the Research Unit collection and 5 from the Biological Survey collection in Washington, including two pure Colinus virginianus virginianus from Pennsylvania, one C. v. texanus from Maryland, and two hybrids between the two subspecies from Maryland. As an aid to identifying the birds Mr. Siegler has made a feather collection from 51 quail. From each bird he plucked a feather from the median anterior part of the belly, and another from the part of the back just dorsal and anterior to the wings. These particular feathers were picked

because they show the characters that are helpful in differentiating between the two subspecies. Mr. Siegler found that the following characteristics, which have been used to differentiate between the subspecies, can not be relied on: Bill length, measurements of tarsus, dark throat ring, belly background color, and light-colored cheek stripe. He says the following characters should be studied more before being adopted as identifying marks: White of throat, juncture of crown color with bill, juncture of dark cheek stripe with bill, color of dark cheek stripe, black on shaft of lesser tail feathers, and stripes on the secondary feathers.

Study Range of Cottontail.--At the Connecticut Research Unit Dr. Paul D. Dalke, leader, reports that 45 traps for cottontails were recently set out for 28 days and that 90 rabbits were caught, or an average of 3.2 rabbits each night. The male rabbits were trapped over a larger range than during early winter and six of the animals were re-trapped for the first time since October. The location of the re-trappings shows relatively little wandering or dispersion on the part of the animals, and no losses have thus far resulted from the periodic trapping. With the use of base maps and tracing-paper overlays, the overlapping of the ranges of various rabbits and the relationships of various types of cover to individual territories are clearly shown.

Dr. Dalke also reports that a ruffed grouse census was made the second week of February, during which a 1,400-acre area was covered by students in two days. A slight increase in population was noted as compared with the fall census figures. Before returning to the Connecticut Research Unit from the St. Louis Wildlife Conference, Dr. Dalke inspected the pheasant management area of the Iowa Research Unit at Ames. He also stopped at Ann Arbor, Mich., and inspected the Williamston game-management project area.

Inspects National Forests.--Travelling 7,000 miles during March, Leo K. Couch finished a year's inspection of national forests in regions 7, 8, and 9, and returned to Washington, March 27. All phases of the Emergency Conservation Work program as it affects wildlife, work under way for improving wildlife food and habitat, and plans for future management were considered with local Forest Service officials. Forests visited included the Clark and Gardiner in Missouri, the Ozark and Quachita in Arkansas, four units of the Kisatchee in Louisiana, five of the seven units in Mississippi, and the Black Warrior in Alabama. Officials of the Southern Forest Experiment Station, New Orleans, La., were consulted on the possible trends of silvicultural research programs and their effect on the restoring game and fur animals to southern forests.

Mammal Survey Continued.--Arthur H. Howell, accompanied by Luther C. Goldman as a collaborating assistant, left February 25 for various points in Florida to continue mammal investigations undertaken there several years ago. Their first detailed survey was made on the Ocala National Forest. On March 6, Mr. Howell gave a luncheon address on "Florida Bird Life" before the 37th annual meeting of the Florida Audubon Society at Rollins College, at Winter Park.

Maps Grazing Plot.--Charles H. Rouse has completed a sketch map of the 75-acre enclosure in the northwest corner of the Wichita Mountains Wildlife Refuge, Okla., which is to be used as one of the research and experimental areas. About half of this area is covered by a rocky ridge and rock outcrops, while the remainder consists of heavily grazed plains grassland. A small drainage ditch runs lengthwise through this land.

Conduct Quail Food Experiments.--Cooperating with the agronomy department of the Alabama Polytechnic Institute, the Alabama Cooperative Wildlife Research Unit is experimenting with the propagation of quail food plants at several of the substations located in various soil provinces in the State. A graduate student is supervising the work, and stomachs for the study of quail food have been collected in conjunction with the collection of dove stomachs.

Confer With Forest Service Officials.--Valgene Lehman and H. R. Siegler, assistants at the Texas Research Unit, met with Forest Service officials at Huntsville, Tex., on January 27, and discussed plans for an agreement that will define the obligations and responsibilities of the Forest Service, the Texas Game, Fish, and Oyster Commission, and the Texas Research Unit in managing quail experimental areas in the Sam Houston National Forest in Walker County. As a result of this conference an early understanding that will facilitate field tests is in prospect.

Warm Weather Encourages Deer Food.--Dyer N. Ruggles, graduate student assistant at the Alabama Research Unit, who has been working on a deer project on the property of a lumber company at Bellamy, Ala., found a greater variety of green food available for deer during February than in December or January. Warm weather during February apparently encouraged a good growth of the food plants. Dwarf sumac is common in the area, and hardly a twig of this plant had not been browsed. Green-brier and conifer leaves and buds, panic grass, and medic appeared to be the foods eaten chiefly in February. During the latter half of January four deer died and in February seven more were found dead. Seven were mature does and the others male fawns. One fawn found in a dying condition was shipped to the Veterinary College at Auburn, where it was found ill with pulmonary pneumonia. Every doe examined was heavily infested with biting lice and lone-star ticks.

Chukars Hit by Winter Weather.--Information obtained by William H. Marshall, stationed at the Bear River Migratory Bird Refuge, Utah, on a trip to the chukar partridge area late in February indicates that the birds there did not survive the severe weather of January in good shape. Six of 18 birds fed and housed at a ranch were lost. In addition, six other birds on the area are believed to have perished. On a day's tracking trip Mr. Marshall learned that there are about 20 skunks on the Bear River Refuge, and that they apparently first came out of their dens on February 20. The tracks indicated that the animals were mating.

Observe Flock of Sandhill Cranes.--William H. Marshall, stationed at the Bear River Refuge, Utah, and Lee Kay, of the Utah State Fish and Game Department, spent three days late in March watching a flock of sandhill cranes near Tremonton. On the third day the two were able to get within a 100 yards of the birds for about three hours. Mr. Kay obtained a reel of motion pictures and several excellent still pictures. The birds were feeding in the wheat stubble on a dry-land farm and were going through their mating antics.

Transfers to Survey.--John Pearce was transferred to the Survey on March 1 from the Forest Service, as an assistant biologist in game-management surveys. He was formerly a wildlife technician on the Allegheny National Forest. He is now stationed at the Northeastern Forest Experiment Station, New Haven, Conn., and will cover New York and the New England States in his investigations.

Food Habits Research

Attend Conferences.--The following members of the Section of Food Habits assembled in St. Louis, Mo., during the first week in March to participate in the conference of the Division of Wildlife Research field staff: Dr. Clarence Cottam, in charge of the section, Dr. W. S. Bourn, A. L. Nelson, and Neil Hotchkiss, all from Washington; E. R. Kalmbach and C. C. Sperry of Denver, Colo.; Johnson A. Neff, Sacramento, Calif.; Harold Blakey, St. Louis, Mo.; J. J. Lynch, Pilot Town, La., and C. S. Williams, of Brigham, Utah.

At the North American Wildlife Conference, preceding the Division's meeting, Mr. Kalmbach presented a paper on "Crow Waterfowl Relationships in the Prairie Provinces" and collaborated with Dr. Coburn, of the Section of Disease Control, in giving a paper entitled, "Disease Factors in Reported Cases of Waterfowl Starvation". Dr. Cottam, in collaboration with Dr. Shillinger, read a paper entitled, "The Importance of Lead Poisoning in Waterfowl," and Mr. Blakey contributed a paper on Ozark wild turkey management.

From March 7 to 9 the group joined with other members of the Division in an inspection trip over typical sections of the Ozark Mountains wild turkey range.

Helps State Game Officials.--During the winter Harold Blakey, who is stationed at St. Louis, Mo., assisted the Missouri Game and Fish Department in planning an emergency feeding of game birds. His recommendation of using whole yellow corn, shelled and on the cob, cane seed, and wheat as economical food was followed. Covies of the birds were first located in the fields by consulting farmers, and then fed by Soil Conservation C. C. C. camps. Shelters were built where there was no suitable feeding cover, and from the results Mr. Blakey feels that this kind of feeding is far more effective than the use of unrecommended feeds distributed generally or from airplanes.

Mr. Blakey also has conferred with Dr. Irwin S. Brown, president of a local sportsmen's organization, on game-management practices and inspected the organization's cooperative quail-management project. This club's membership is limited to 15 men, who pay a beginning fee of \$50 to cover expenses of the field-management program. A preliminary survey of the quail population on the area before the hunting season opens is planned to enable the club officers to determine how many birds can be taken so that enough can be kept as breeding stock. A daily bag limit of six birds per hunter and a minimum size covey from which the birds may be killed have been tentatively agreed upon. Before entering the hunting grounds the hunters will first be required to report at the farmer's home, and upon leaving they will be required to check the kill. At the end of the season the farmers are to be reimbursed, at the rate of 25 cents per bird taken. The total sum is to be turned over to the farmers as a group in order that they may use the money as they please.

Inspect Proposed Refuge Area.--Accompanied by H. L. Blakey, Dr. Cottam and A. L. Nelson inspected the proposed wilderness refuge area in the Clark National Forest Purchase Unit, Mo., on March 10, with a view to determining its utility for further turkey investigations. There is a great need for a working turkey-management project in the national forests in Missouri and the wilderness area offers excellent possibilities along this line, according to the report of Dr. Cottam and Mr. Nelson. The lack of control over poaching, burning, and grazing in much of the turkey range in Missouri has impeded the re-establishment of the wild turkey.

Attend Izaak Walton Meeting in Norfolk.--At the request of President J. Baecker, of the Norfolk Chapter of the Izaak Walton League, Dr. Cottam and A. L. Nelson attended a luncheon meeting of the League on March 29, and discussed various aspects of the bounty question. Appeals have already been presented to the Virginia Commission of Game and Inland Fisheries at Richmond for the reestablishment of bounty payments on predatory animals. Dr. Cottam stressed the inadequacy and inefficiency of the bounty system as a game-management practice and emphasized the need for education in wildlife conservation work to bring about satisfactory public policies for game resources.

Study Waterfowl Foods.--Recently inaugurated work on the propagation of waterfowl and waterfowl food plants at the Bear River (Utah) and Delta (La.) Refuges is well under way. At the Bear River Refuge, in Utah, C. S. Williams is developing facilities for studying the natural and artificial propagation of redheads and other ducks and is studying waterfowl food plants and the physical and chemical conditions of their environment. These studies were begun several years ago in cooperation with staff members of the Utah State Agricultural College. Mr. Williams also is planning to study the relations of algae, protozoa, and other minute but abundant forms of life to the incipience of botulism.

J. J. Lynch, of the Delta Refuge, La., is studying the environmental relationships of the marsh and aquatic plants that support the enormous winter population of blue geese, large numbers of snow and Canada geese, and various species of ducks. One form of vegetation that appears worthless to waterfowl as well as to other forms of wildlife, and also obnoxious is the alligatorweed (Alternanthera philoxeroides). It is even more effective in closing up ponds and bayous than the water-hyacinth, and Mr. Lynch is studying possibilities for its control.

Propagate Duck-food Plants at Patuxent Refuge.--At the Patuxent Research Refuge, Md., construction of a battery of 24 small ponds for the experimental propagation of waterfowl food plants and a well to maintain the water level in these ponds is under way. A 60-acre pond, also in process of construction, will afford a site for putting into practice some of the methods developed at the experimental ponds. Neil Hotchkiss has transplanted several species of marsh and aquatic plants to small ponds already there and has sown seeds of representative duck-food plants. In the Washington laboratory he is making germination tests of seeds of a large percentage of the better known duck-food plants, which were stored through the winter.

Study Animal Life at Refuge.--Dr. Cottam and Dr. Bourn were in Delaware April 2 to 4, making quadrat counts of animal life occurring in different plant associations on the Bombay Hook Migratory Waterfowl Refuge and on an area ditched for mosquito control, which is separated from the refuge by a canal. On the ditched land, which is of the same elevation as the refuge property, marked and surprising reduction was noted in the forms of animal life, although no growing season had elapsed since the area was ditched.

On April 17, Doctors Cottam and Bourn spoke on "Mosquito Control and Wildlife" at a meeting of the Biological Society of Washington. Their discussions were illustrated with slides, which in tabular form compared the results of quadrat counts in ditched and unditched areas. Dr. F. C. Bishopp, of the Bureau of Entomology and Plant Quarantine, and Dr. L. L. Williams, Jr., of the Public Health Service, presented the same topic as related to entomology and public health.

Observes Waterfowl.--Johnson A. Neff, with headquarters at Sacramento, Calif., spent January 21 to 23 with State Game Warden E. C. Vail making observations of waterfowl on the area between Colusa and Orland west of the Sacramento River. Extreme cold and snow, he reports, caused some losses among doves, meadowlarks, and other ground-feeding and roosting birds. During the annual waterfowl survey he observed a number of bodies of grebes, coots, and ruddy ducks, and occasionally the bodies of some other ducks on ice-covered lakes. The extreme cold appeared to have driven most of the coots and gallinules from that part of the State.

On February 1, Mr. Neff arrived in Washington to assist in starling-control experiments and to continue his studies of the food habits of the band-tailed pigeon, which is abundant in some of the Pacific Coast States. On returning to his headquarters he attended the Wildlife Conference at St. Louis.

Inspects Manitoba Sanctuary.--After attending the meetings of the North American Wildlife Conference at St. Louis, Cecil S. Williams went to Manitoba to inspect a sanctuary where waterfowl propagation is being carried on under the supervision of Dominion and Provincial Governments. Following this inspection trip Mr. Williams proceeded to his new headquarters at the Bear River Migratory Bird Refuge, where he will be engaged in research on the propagation of waterfowl and waterfowl food plants.

Inspect Game Areas.--A. L. Nelson, accompanied by W. W. Bailey, of the Virginia Polytechnic Institute, who has been at the Food Habits Laboratory the past two months working with Mr. Nelson on the food habits of the ruffed grouse on the George Washington National Forest, inspected game areas near Harrisonburg, Va., February 14 and 15. They also collected specimens of food plants of the ruffed grouse for use in illustrating a publication they are preparing on this subject.

Attends Mosquito-Control Meeting.--Dr. Cottam attended the 24th annual meeting of the New Jersey Mosquito Extermination Association at Atlantic City, March 17 to 19, and participated in the informal discussions in an attempt to get the cooperation of the association in protecting wildlife in areas where control is planned. Before returning to Washington, he inspected the condition of eelgrass at various places along the coast from New Jersey to Virginia.

Plants Eelgrass.--During the latter part of February, Franklin H. May transplanted Pacific-coast eelgrass at various points from Long Island, N.Y., to Wachapreague, Va. These plantings had been shipped to Washington by Theo H. Scheffer, of Payallup, Wash.

Helps in Government Condemnation Case.--F. M. Uhler left Washington on April 10, for LaCrosse, Wis., to aid representatives of the Division of Land Acquisition and the Department of Justice in presenting testimony on biological factors of a fish and fur farm in Trempealeau and Buffalo Counties, Wis., during condemnation proceedings involving this property.

Collects Specimens.--C. F. Smith made a short survey of winter deer food plants on the Allegheny National Forest during the latter part of March and collected specimens for the Food Habits reference collection.

Investigate Game Bird Problems.--A. L. Nelson and A. C. Martin left April 19 for a week's inspection of a section of the George Washington National Forest near Harrisonburg, Va., to investigate problems relating to the management of ruffed grouse and wild turkey.

Transferred.--John J. Lynch, of the Division of Migratory Waterfowl, with headquarters at Amherst, Mass., was transferred to the Section of Food Habits, March 1. His new duties will consist principally of experimental propagation of waterfowl food plants in the Southern States. Enroute to his new headquarters at the Delta Migratory Waterfowl Refuge, La., Mr. Lynch attended the Wildlife Conference at St. Louis, Mo. Neil Hotchkiss accompanied Mr. Lynch to Louisiana, and on his return trip to Washington inspected waterfowl ponds at Fort Benning, Ga., on March 20, and recommended improvements.

Miss Genevieve M. Andruczyk was appointed junior clerk-stenographer in the section, February 9, by transfer from the Veterans' Administration, to fill the vacancy caused by the transfer of Miss Lois E. Graham to the Department of State on November 2.

On April 1, James A. Bruce, of Wooster, Ohio; Robert C. McClanahan, of Pensacola, Fla., and Ray Greenfield, of Washington, reported for temporary duty for three months as assistant biological aides in the Food Habits laboratory. They will assist biologists of the section in the examination of stomachs of game collected on national forests.

Miss Floyd Clarke Foster, who has been employed in the Washington office for the past six months as a junior clerk-stenographer, left the Government service on April 15, and returned to her home in Greenville, S. C.

Distribution and Migration of Birds

Attends Bounty Hearing.--On February 20, F. C. Lincoln, in charge of the Section of Distribution and Migration of Birds, and A. L. Nelson, of the Section of Food Habits Research, attended a hearing of the Virginia Commission of Game and Inland Fisheries at Richmond on the proposed bounty on birds of prey and foxes. Previously about 300 sportsmen, including both quail and fox hunters, held a meeting and then with a member of the State legislature as their spokesman attended the hearing in a body. They presented a number of resolutions calling for bounties on birds of prey except the osprey and the screech owl, the licensing of cats, control of hunting dogs during the nesting seasons, and other related matters. Chairman Carl Nolting of the commission introduced Dr. J. J. Murray, of Lexington, who defended the hawks and owls. Mr. Lincoln was then called upon and explained some of the points overlooked by Dr. Murray and emphasized others.

Specialize in Woodcock Banding.--Lawrence J. Merovka, game management agent, assisted by H. C. Gascon, is studying the migratory habits of woodcock by the banding method. In January the two investigators, working at night with headlights and nets, banded 39 woodcocks in Louisiana. Next summer Mr. Merovka hopes to develop a headlight that will be more effective in blinding the birds and expediting their capture. He also plans to develop a better netting method, as a number of birds were flushed during the banding activities before a favorable netting position could be attained.

Confers With Flyway Biologists.--Early in March, Mr. Lincoln met the four flyway biologists, C. E. Gillham, Luther J. Goldman, Harold S. Peters, and Dr. G. B. Saunders, at St. Louis, Mo., and made plans for the coming summer's investigation of waterfowl in Canada. Mr. Goldman came directly to the conference from his field work in western Mexico. Mr. Gillham and his collaborator, Luther C. Goldman have completed their investigation of waterfowl in eastern Mexico, and have now returned to Ames, Iowa, and Washington, D. C., respectively. Dr. Saunders will shortly establish headquarters at Denver, Colo.

Mr. Peters made the longest airplane flight of any observer during the January waterfowl inventory by flying in a naval plane from Pensacola, Fla., over the Louisiana coastal marshes to Sabine Lake on the Texas border and then returning to Pensacola. His trip covered 1,700 miles.

Captures Eagle in Duck Trap.--F. W. Robl, banding cooperator of Ellinwood, Kans., was much surprised on February 11, to find a golden eagle in his duck-banding trap. The trap contained 74 ducks, but none had been harmed by the eagle. Mr. Robl also banded this bird.

Returns from Banded Birds Reported.--A gadwall banded August 3, 1936, at the Lower Souris Refuge, Upham, N. Dak., was shot November 27, 1936, at Princess Anne, Md.; a glaucous-winged gull banded July 25, 1925, at Mittenatch Island, Strait of Georgia, B. C., was found dead on September 17, 1936, at Egmont, Jervis Inlet, British Columbia; a starling banded May 9, 1936, in Hamilton County, Ohio, was shot December 1, 1936, at Greenwood, Fla.; a northern shrike banded February 14, 1936, at McMillan, Mich., was retrapped at the same station on January 23, 1937; a California gull banded July 8, 1936, at Redberry, Saskatchewan, was killed October 29, 1936, at Chihuahua, Chihuahua, Mexico; a black-crowned night heron banded June 4, 1936, at Ogden, Ill., was killed February 4, 1937, at Pedro Betancourt, Matanzas, Cuba; a blue-winged teal banded November 21, 1936, at Avery Island, La., was shot February 7, 1937, at Lake La Deseada, Pinar del Rio, Cuba; a blue-winged teal banded at Avery Island, La., October 4, 1936, was killed February 7, 1937, at Laguna San Pedro, Cabanas Bay, Pinar del Rio, Cuba; a blue-winged teal banded July 28, 1932, at Forest Lake, Minn., was captured February 1, 1937, at Coyuca Lagoon, District of Tabares, Guerrero, Mexico; a mourning dove banded June 17, 1931, at Notre Dame, Ind., was shot December 14, 1936, at Cuernavaca, Morelos, Mexico.

a pintail banded September 16, 1936 at the Malheur Refuge, Burns, Oreg., was shot about February 5, 1937, at Pozo de Ibarra, Nayarit, Mexico; a pintail banded September 10, 1936, at the Malheur Refuge, Burns, Oreg., was killed December 1, 1936, at Rosario, Sinaloa, Mexico; a pintail banded March 15, 1936, at Harrah, Okla., was killed about March 5, 1937, at Iramuco, Guanajuato, Mexico; a pintail banded June 30, 1936, at Delta, Manitoba, was found dead about February 15, 1937, at Ocotlan, Jalisco, Mexico; a blue-winged teal banded September 13, 1936, at the Munuskong State Park, Chippewa County, Mich., was shot in January, 1937, in Santa Clara Province, Trinidad, British West Indies; a common tern banded July 7, 1936, at Mattapoissett, Mass., was caught about February 3, 1937, at Yrapa, Venezuela; a common tern banded July 4, 1936, at Penikese Island, Mass., was caught about November 28, 1936, at Yrapa, Venezuela; a common tern banded July 2, 1936, at Mattapoissett, Mass., was captured about February 15, 1937, at Labrea, Trinidad, British West Indies; as were also two common terns banded in July 1936, at Tern Island, Chatham, Mass.; a common tern banded July 5, 1936, at Tern Island, Chatham, Mass., was captured and released January 27, 1937, at Carapichaima, Trinidad, British West Indies; a roseate tern banded July 5, 1936, at Tern Island, Chatham, Mass., was found injured January 17, 1937, on the Demerara River, British Guiana; a common tern banded July 1, 1936, at Tern Island, Chatham, Mass., was caught January 27, 1937, at Orange Valley Bay, Trinidad, British West Indies; a common tern banded June 26, 1936, at Egg Island, Hyannis, Mass., was caught February 2, 1937, at Brighton, Trinidad, British West Indies; a common tern banded July 4, 1936, at Penikese Island, Mass., was caught about February 1, 1937, at Brighton, Trinidad, British West Indies.

Fur Resources

Attend Wildlife Conference.--Frank G. Ashbrook, in charge of the Section of Fur Resources, attended the North American Wildlife Conference at St. Louis, Mo., in March, and took an active part in the session dealing with fur animals. He also conducted a group of Bureau members on a tour through a seal fur dyeing and dressing plant. On March 4 he conferred with members of the Park Service on the proposed plan of establishing a museum on the fur trade as a major part of the memorial expansion project in St. Louis. On March 5 he talked on the work of the Section before the meeting of the Division of Wildlife Research. He also visited the research laboratories of a large milling company in St. Louis, and conferred with officials there on the preparation of fox feeds. Returning to Washington, he stopped at a large rabbit distributing company at Cincinnati, Ohio, which requested assistance in handling problems in connection with the management of its 400-doe rabbitry established as a demonstration unit.

Ships Rabbit Meat Long Distance.--Twelve select frozen carcasses of rabbit in cellophane window cartons and packed in solid carbon dioxide were shipped during February by George S. Templeton, director of the Rabbit Experiment Station, Fontana, Calif., to Washington, D. C., to determine the possibility of long-distance shipments. This shipment was in transit four and one-half days and arrived in excellent condition. The carcasses were distributed among various members of the Department, and although some of them did not use them until a week later they reported the quality, tenderness, and flavor of the meat highly satisfactory.

Director Templeton also has sent 72 specially selected rabbit skins to the Washington office for use in a cooperative study with the Bureau of Standards on the comparative value of raw and dressed skins. These skins will be graded by the fur trade, after which they will be turned over to the Bureau of Standards for critical examination throughout the various stages of the dressing process.

Talks on Fur Farming.--During February Chas. F. Bassett, director of the Fur Animal Experiment Station, Saratoga Springs, N. Y., addressed the following groups: A local boys' organization on the fur farming, February 6; the Ladies Aid Society of the Presbyterian Church of Saratoga Springs, on "The Romance of Fur", February 17; and the Rotary Club of Whitehall, N. Y., on the "Like Begets Like", February 23. He used several specimens of fur in illustrating his talks.

Visit Fur Experiment Station.--Orlanda Nieman and Ronald Stephenson, of the Nieman-Stephenson fox ranch, Thiensville, Wis., visited the Fur Animal Experiment Station at Saratoga Springs on February 26, on their way to New York City to attend the auction sale of approximately 12,000 pelts produced on their ranches. They have made their records available to the Section of Fur Resources for a study of factors that influence pelt prices. The information from this study will be useful to all fox breeders.

Finds Salt Not Essential to Foxes.--In a preliminary report on salt as a food for foxes, Chas. F. Bassett, of the Fur Animal Experiment Station, states that foxes at the experiment station do not consume salt from salt blocks. Several blocks of salt were placed in different pens, but periodic weighing of the blocks showed that the foxes had not eaten from them.

Adopts Survey's Feeding Formula.--The large experimental group of rabbits at the Rockefeller Institute, Princeton, N. J., has been placed on a ration suggested by George Templeton, Director of the Rabbit Experiment Station. This ration consists chiefly of whole grains and pelleted protein meal, which permits a more rigid control of the experimental animals than ordinary rations.

Confer With Fur Trade.--Frank G. Ashbrook, and Chas. E. Kellogg, of the Washington office, and C. F. Bassett, director of the Fur Animal Experiment Station, New York, recently met with members of the fur trade in New York City and discussed the relative quality of skins taken last fall from experimental animals at the experiment station. A detailed description of the effects of breeding and feeding on the quality, color, and size of pelts produced was obtained. In recent years the Station's work has dealt mainly with the utilization of various by-products as a substitute for raw meat in the animals' rations.

Talks Before Home Economics Group.--Frank G. Ashbrook, in charge of the Section of Fur Resources, on March 24, addressed a group of women in the home economics class at George Washington University on life habits of common fur animals of North America, and uses made of their fur. He illustrated his talk with dressed furs, and at the close of the talk the students asked questions on the fur industry and the wearing qualities and methods of caring for garments.

Addresses Rabbit Breeders.--On March 16, George S. Templeton, director of the U. S. Rabbit Experiment Station, Calif., attended the monthly meeting of the Garden Grove Rabbit Breeders Association and discussed the commercial feeding of rabbits. In connection with this trip he visited rabbitries at Orange, Long Beach, and Glendora, Calif. On March 20 the leaders and members of the Orange County 4-H Club visited the Station. There were 118 in the party, of which 25 are actively engaged in rabbit projects. Mr. Templeton explained the experiments that are under way and methods developed for efficient rabbit management.

Karakul Sheep Breeder Visits Office.--George H. Kiosseff, Karakul sheep breeder of Texas, visited the Washington office April 5, and discussed with officials of the Bureau the Karakul breeding work in Texas, including cross breeding with Rambouillet ewes. He brought along several skins of the first cross animals and garments made from the skins, and with Frank G. Ashbrook and Chas. E. Kellogg visited the National Agricultural Research Center of the Department, where cross-breeding experiments with Karakul sheep are under way. The following day Mr. Kiosseff showed Bureau officials and others a motion picture of Karakul breeding work in Texas.

Disease Control

Visits Biological Laboratories.--On his trip to the Wildlife Conference, at St. Louis, Mo., Dr. J. E. Shillinger, in charge of the Section of Disease Control, visited biological laboratories in Indianapolis, Ind., and Kansas City, Mo., and conferred with research workers at these institutions on methods of preparing immunizing products for fur animals. He also conferred with bacteriologists at the University of Missouri, University of

Minnesota, and Ohio State University. At the Ohio University Dr. Shillinger held a lengthy discussion with Dr. O. V. Brumley, dean of the veterinary college, and Lawrence Hicks on recommended procedures for studying diseases of wildlife in the research program of the Ohio Research Unit.

Inspect Wild Boar Area.--On February 23, Dr. F. D. McKenney of the Section of Disease Control, was detailed to make a preliminary survey in the Tellico fish and game management area of the Cherokee National Forest in Tennessee of the disease relationships between the Prussian wild boar and domestic hogs, as well as other game species and predators. Wild boars in this forest are the progeny of a group of 26 animals imported into Tennessee about 1912 for stocking a private game preserve. After a few months the animals escaped from the preserve and established themselves in the territory surrounding the forest. Since then they have been hunted intensively, but their ability to protect themselves has saved them from extinction. About 50 to 75 of them are now being protected on a game-management area supervised by the Forest Service. Data on the disease relationships and habits of these animals were collected until stopped by a severe snowstorm in that district on February 28.

Explains Diseases of Deer.--A paper on disease of deer and illustrated with lantern slides was presented by Dr. McKenney on March 13, before the Massachusetts Outdoor Recreational Conference, at Amherst. All forms of sport were covered, with the afternoon being devoted to wildlife-conservation problems. Dr. McKenney's paper showed the vital bearing the diseases of deer have on the sport of hunting, and brought out numerous questions on specific deer diseases.

Identify Parasites.--A shipment of a large assortment of internal and external parasites and pathological specimens collected from game birds and mammals and predators was received from the game technicians at the Pisgah National Forest in North Carolina last month. These parasites and specimens are being identified and studied in an effort to assist the men working on diseases of wildlife in the Pisgah area. This study also will add to the present information on diseases that affect wildlife.

Diseased Ducks Starve.--A number of wild ducks found in an apparent starved condition in southern Idaho during the winter have been examined by Dr. Don R. Coburn, in the pathological laboratory at the Bear River Migratory Bird Refuge, Utah, and by E. R. Kalmbach, of the Food Habits Research Laboratory, Denver, Colo. Local conservationists diagnosed the cause of death as starvation, but a detailed study by Dr. Coburn and Mr. Kalmbach showed that the birds invariably were affected with some primary pathological condition, which would probably account for their failure to migrate to suitable feeding areas. These findings together with many similar observations previously made were presented in a paper by Mr. Kalmbach and Dr. Coburn at the Wildlife Conference in St. Louis, Mo., in March.

MIGRATORY WATERFOWL

Attend St. Louis Divisional Meeting.--The following Washington and field personnel of the Division of Migratory Waterfowl attended the divisional meeting held in St. Louis, March 1 to 6: Mr. Salyer, A. C. Elmer, W. F. Kubichek, Amos B. Emery, Stanley G. Jewett, Wm. T. Krummes, John N. Ball, Burnie Maurek, E. P. Creaser, John H. Sutherlin, H. W. Terhune, Carey H. Bennett, Gill Gigstead, Ray C. Steele, George L. Girard, M. O. Steen, C. J. Henry, Phillip A. DuMont, Ward M. Sharp, Gerald B. Spawn, C. G. Fairchild, Peter J. Van Huizen, C. S. Johnson, W. W. Bennett, Robert T. Cochran, and Andrew H. DuPre.

Many interesting experiences and problems were related and discussed at this meeting, which followed the North American Wildlife Conference. Members of other divisions of the Bureau presented papers and talks on birdbanding, fur resources, enforcement problems, game-bird parasites, local values of food plants, saltmarsh ecology, and administrative procedure. Dr. Gabrielson and Mr. Henderson discussed at some length the need for closer cooperation between the various individuals and divisions of the Bureau and the necessity for the proper conduct of field officers.

Mr. Salyer discussed administrative biology as a career, pointing out the value of having persons with such training in the refuge program. C. G. Fairchild, in charge of the Tule Lake Refuge, Calif., explained the operation of the checking station and the shooting season on the open portion of the refuge. During the open season Mr. Fairchild and his assistants apprehended about 100 violators of State and Federal game laws.

Phillip A. DuMont, assistant refuge manager of the Sand Lake Refuge in South Dakota, presented a paper on the hay and grazing situation on that refuge and pointed out the need for a definite Bureau policy in the matter. John H. Sutherlin, assistant refuge manager of the Delta Refuge, La., and Peter J. Van Huizen, of the Blackwater Refuge, Md., discussed the abundance of fur-bearing animals on refuges, the trapping situation, and the need for a definite policy for regulating this resource.

Other subjects discussed were on the cooperation of State schools in refuge development, cooperation with sportsmen's organizations, waterfowl nesting on artificial islands, refuge-development problems in various parts of the country, waterfowl-food problems, fire prevention, predators, relation between the Washington office and the field, W. P. A. work on Bureau refuges, biological rehabilitation of wildlife habitat, field administrative problems, and the North Dakota easement refuges.

Spalding Ranch Becomes Refuge.--The Federal Register for March 3, 1937, contained an Executive Order dated February 27, making the 10,775-acre Spalding ranch a Federal migratory waterfowl refuge. This ranch, situated in the Sacramento Valley in Glenn and Colusa Counties, Calif., about five miles south of Willows, has been designated the Sacramento Migratory Waterfowl Refuge. It is strategically located in the Pacific flyway and will also afford wintering grounds for some species greatly in need of protection.

It is a traditional winter concentration point for cackling, and Canada geese. Lesser snow, Hutchins's, and white-fronted geese also winter there in large numbers and the area is used extensively by many species of ducks, particularly the pintail, widgeon, green-winged teal, the spoonbill, mallard, and redhead. The cinnamon teal and mallard also nest on the refuge.

Willapa Harbor Refuge Established.--By Executive Order of January 22, the Willapa Bay Light Station and adjacent land in Washington, comprising 625 acres, has been established as the Willapa Harbor Migratory Bird Refuge. The reservation of this area as a refuge and breeding ground for migratory birds and other wildlife is subject to its primary use by the Departments of War and the Treasury for rights-of-way for roads, telephone lines, and transmission lines to the Willapa Bay Light Station or other adjacent properties under control of these two departments. The Executive Order of September 11, 1854, reserving certain public lands for lighthouse purposes, has been revoked insofar as it applies to the lands included within the new order establishing the refuge.

Delta Refuge Enlarged.--A total of 2,926 acres has been added to the Delta Migratory Waterfowl Refuge in Plaquemines Parish, La., by a recent Executive Order. Lands within this enlargement are under the primary jurisdiction of the War Department, and their reservation for waterfowl is subject to use by that Department for the improvement of navigation in the Mississippi River. The Delta Refuge, established by Executive Order of November 19, 1935, will ultimately contain approximately 40,000 acres. During the year it has been under the Survey's administration, the area has proved its worth as a refuge. Last winter, it was estimated that 750,000 birds, 500,000 of which were ducks and geese, used the refuge.

Swan Lake Becomes Federal Refuge.--By Executive Order dated February 27, 1937, the Swan Lake area in Chariton County, Missouri, about 25 miles from Chillicothe, was designated a Federal migratory waterfowl refuge. It lies in the bottomland of the Grand River, in the direct line of flight of waterfowl during their spring and fall migrations.

Des Lacs C. C. C. Camp Has Colorful History.--The C. C. C. camp at Kenmare, N. Dak., which is helping develop the Des Lacs and Lostwood Migratory Waterfowl Refuges, is one of the original C. C. C. companies and has served under four Federal services, including the Soil Conservation Service, National Park Service, Forest Service, and Biological Survey. It has worked in Arkansas, Minnesota, and North Dakota. Organized on May 25, 1933, the camp still has several boys who have been on its rolls since its formation. Capt. C. J. Bakken, the present commander, has been with the camp since September, 1933.

During the past year this camp put in 240 days, or 31,511 man-days, on the Des Lacs and Lostwood Refuges, and the work accomplished included completion of 82 miles of 4-strand barbwire fence over rough and rocky country, erection of 300 boundary markers, and construction of 35 miles of truck trails and 34 stone overflow culverts. In addition, more than 8,000 pounds of seed and root stalks were gathered and stored, and 5,500 trees and 3,500 shrubs were planted and kept watered. Fifty buildings on 19 farms were razed and 10 miles of fence and posts torn down and salvaged. Five thousand square yards of rip-rap were completed and two headquarters sites were landscaped, which entailed the moving of more than 20,000 yards of dirt. Two lookout towers were erected on the refuges; eight buildings were painted; 1 1/4 miles of telephone lines were put up and connected with the headquarters sites; and two flagpoles were peeled, painted, and erected. A well 260 feet deep was drilled and the necessary plumbing installed. In the spring months, 588 acres were ploughed and planted with grain to feed the birds. Sixty feed boxes, 21 bird shelters, 2 nesting islands about 600 feet long were constructed, and 3 other nesting islands were improved.

Report Shooting at Tule Lake.--A final report on the number of birds killed on the public shooting area of the Tule Lake Bird Refuge, Calif., during the 1936 open season has been received and indicates that a surprisingly large percentage of the hunters who entered the refuge left with full bag limits. Two hundred and one hunters shot their bag limit of 10 ducks each, 1,301 shot the full limit of 4 geese each, and 117 netted bags of 2 pheasants each. A total of 7,035 hunters registered at the refuge during the open season killed 20,799 birds, including 10,305 ducks, 9,923 geese, 442 pheasants, and a few of miscellaneous species, the last either accidentally or illegally. The species of bird most commonly killed was the pintail duck (5,429); next in line was the cackling goose (4,240); the white-fronted goose was third (3,459); mallards came next (2,571). The average bag for all hunters was 2.9 birds. Hunters were checked in from far-away states, as New York, Arkansas, Oklahoma, and Texas.

Arthur Page Dies.--Word has been received of the death of Arthur Page, 52, project engineer of the Malheur Migratory Bird Refuge, Oreg. He was stricken with pneumonia and died on January 30. Mr. Page came to Harney County, Oreg., in 1913, and remained there until his death. For many years he worked at the P Ranch and when it was purchased by the Biological Survey he was retained as project engineer. His familiarity with the Blitzen Valley, close association with its development, and qualifications as an engineer enabled him to render valuable service for the Bureau.

Rescue Couple Stranded in Blizzard.--Word has been received of the rescue by enrollees of the Bear River C. C. C. camp on January 17, of a young couple caught in a blizzard on the State highway between Wellsville and Sardine Canyon. Led by Capt. Warren D. Paul and Kenneth Murdock, of the Bear River camp, and Capt. F. W. Goates, of the nearby Huntsville camp,

a party of 23 enrollees made their way through the driving snow and succeeded in rescuing the young people, who had been stranded from 9 o'clock Sunday morning until 4 o'clock Sunday afternoon. Suffering from cold and exposure the two were taken to Brigham for treatment. On the same day, the C. C. C. boys also freed a bus and three other automobiles from the snow.

C. C. C. Enrollees Feed Wildlife.--Several enrollees of Bear River Camp BF-1, Brigham, Utah, learned to ski in carrying food to the starving, waterfowl and pheasants on and near the Bear River Migratory Bird Refuge. Deep snow made travel by foot impossible. An average of 600 pounds of wheat and corn was fed daily during the emergency period, and C. C. C. boys say it was common to see pheasants and ducks feeding together.

C. C. C. Camps Approved.--The Bureau recently received notice of the approval of the continuation of the following 22 C. C. C. camps working on Biological Survey refuges: White River Camp BF-1, Arkansas; White River Camp BF-2, Arkansas; White River Camp BF-3, Arkansas; Tule Lake Camp BF-1, California; St. Marks Camp BF-2, Florida; Seney Camp BF-1, Michigan; Thief Lake Camp BF-1, Minnesota; Valentine Camp BF-2, Nebraska; Swanquarter Camp BF-1, North Carolina; Pea Island Camp BF-2, North Carolina; Upper Souris Camp BF-1, North Dakota; Arrowwood Camp BF-2, North Dakota; Des Lacs Camp BF-3, North Dakota; Lower Souris Camp BF-4, North Dakota; Upper Souris Camp BF-5, North Dakota; Elm Island Camp BF-1, Oklahoma; Panther Creek Camp BF-2, Oklahoma; Five Mile Camp BF-1, Oregon; Buena Vista Camp BF-3, Oregon; Savannah River Camp BF-1, South Carolina; Sand Lake Camp BF-2, South Dakota; and Bear River Camp BF-1, Utah.

The establishment of five new camps -- Sacramento Camp BF-2, California; Okefenokee Camp BF-1, Georgia; Tamarac Camp BF-2, Minnesota; Medicine Lake Camp BF-2, Montana; and Lacreek Camp BF-3, South Dakota -- was also approved, as was the reoccupancy of Sod House Camp BF-2, Oregon, and Charles Sheldon Camp BF-1, Nevada.

Additional W. P. A. Funds Allotted.--A recent additional allotment of \$178,050 assures the continuation through April of present development operations on refuges in North Dakota, South Dakota, Montana, Nebraska, Oklahoma, Louisiana, Wisconsin, and Wyoming, making a total of \$1,708,799 allotted by the W. P. A. to the Biological Survey specifically for refuge-development purposes.

Engineering Work Progresses.--Warren E. Hall, of the Bureau of Agricultural Engineering, accompanied by E. P. Creaser, recently inspected the Blackbeard Island Refuge, Ga., to determine the feasibility of constructing additional fresh-water ponds on the area and enlarging the existing ones. Engineering surveys have recently gotten under way on the Virgin River part of the Boulder Canyon Wildlife Refuge in Arizona and Nevada. Bids covering the engineering work to be done on the Mud Lake Refuge, were opened on February 19. This work will be done under the supervision of the Bureau of Agricultural Engineering. Survey parties on Carson Sink and Ruby Lakes, Nevada, were forced to abandon their work last winter because of snow storms.

Mud Lake Made Federal Refuge.--On March 23, the President signed an Executive order establishing the Mud Lake Migratory Waterfowl Refuge, covering 55,170 acres, in Marshall County, Minn. Mud lake once covered about 5,000 acres and was from 2 to 6 feet deep. It was studded with numerous marshy islands and surrounded by small lakes and potholes filled with water. Today, however, few migratory birds use Mud Lake, because of the drainage program undertaken there about 1911. The lake frequently becomes dry, and peat fires have ruined much of its vegetation.

Through the Resettlement Administration and with the cooperation of the State of Minnesota the Biological Survey already has acquired a large part of the refuge land. A contract for building the main dam for impounding water has been awarded to a private contractor. C. C. C. boys in a Survey camp cooperating with the State in developing a State refuge at Thief Lake will devote most of their time now to improving the new Federal refuge, which is nearby.

Okefenokee Swamp Becomes Refuge.--By Executive Order of March 30, approximately 479,450 acres of the vast Okefenokee Swamp in Charlton, Clinch, and Ware Counties, Ga., were reserved and set aside as a Federal refuge and breeding ground for migratory birds and other wildlife. The Bureau has title to 296,000 acres of the land to be included within the sanctuary. The swamp's wilderness condition makes it naturally attractive to wildlife, and studies the last five years show it is becoming increasingly important as a winter refuge for migratory waterfowl. Little development work will be undertaken there as the Survey plans to preserve the swamp in its natural state.

Visit Okefenokee Refuge.--While on an inspection trip of the southern refuges during the latter part of February, A. B. Emery met Messrs. Fechner and Morrell, of the E. C. W., at Savannah and conducted them over the Okefenokee Refuge, Ga. They appeared much impressed by the area and agreed that it should be kept in its wilderness state as much as possible. A work program for the camp that is to be placed on the refuge at the beginning of the ninth period was discussed, and it was decided that the opening of boat trails to facilitate patrol, the opening and construction of necessary roads and trails, the construction of administrative buildings, telephone lines, and other facilities for refuge administration, posting, and the reduction of fire hazards should be the main work of the camp.

In Washington.--Dr. Edwin P. Creaser, assistant manager of the Savannah River Wildlife Refuge, Ga., and M. I. Frost, regional inspector of the Section of Restoration and Development, spent several days during the latter part of March in the Washington office discussing the work of the Savannah Refuge and other Atlantic coast refuges with officials of the Migratory Waterfowl Division and Regional Director James Silver. M. O. Steen, easement project administrator for North Dakota and in charge of the W. P. A. activities in North Dakota and Montana, with headquarters at Bismarck, arrived in Washington March 22 for a month's detail. While here he assisted in coordinating the Bureau's field and Washington W. P. A. activities.

Assigned to New Duties.--Stanley G. Jewett, superintendent of the Malheur Migratory Bird Refuge since August 1, 1935, took over his new duties March 1, as waterfowl biologist for Region 1 under Regional Director Wm. R. Rush. He will be responsible for the biological rehabilitation of migratory bird and wildlife refuges in the region, including Malheur, Sacramento, Clear Lake, Klamath, Tule Lake, and some 30 others. He will also compile a descriptive pamphlet of each refuge showing the history, purpose, state of development, and species of wildlife found on them. John C. Scharff, who has been on the Malheur Refuge since August 1, 1935, first as range manager and later as assistant superintendent, has been made acting superintendent to fill the position vacated by Mr. Jewett.

Spring Migrants Arrive.--On April 6, the first flocks of Canada, blue, and snow geese, pintails, red-winged blackbirds, meadowlarks, and burrowing owls arrived on the Sand Lake Migratory Waterfowl Refuge, S. Dak. Whistling swans, green-winged teals, mallards, scaups, and herring gulls also have appeared on the area this spring. Phillip A. DuMont, assistant refuge manager, reports that conditions on the refuge are excellent to receive this influx of birds. All the lakes are open, and the water is rising rapidly, overflowing Sandell Lake and several of the pool areas, almost filling Mud Lake, and covering about two-thirds of Sand Lake. Watson E. Beed, junior refuge manager of the Wapabay Migratory Waterfowl Refuge, reports that Canada, snow, and blue geese are also arriving at the Wapabay Refuge but that very few ducks have arrived. He reports that the water levels in all the lakes there are rising rapidly, and that the two water reservoirs are filled.

Jones and Matia Islands Designated as Refuges.--Two islands in San Juan County, Washington -- Jones and Matia -- containing 179.07 and 145 acres, respectively, were designated Federal refuges under the administration of the Biological Survey and their use for lighthouse purposes revoked by Executive Orders of March 30. These areas are to be known as the Jones Island Migratory Bird Refuge and the Matia Island Migratory Bird Refuge.

New Appointees.--Effective March 4, three new assistant architects were appointed to assist in the work of the drafting room of the Section of Restoration and Development. They are Fred J. Abendrath, Robert S. Loney, and Thomas H. Yardley, Jr. Two new clerk-stenographers have recently been appointed in the Washington office of the Division. They are Miss Marjorie E. Grear, who was appointed in the Section of Restoration and Development, February 25; and Miss Carolyn B. Walter, who was appointed in the Section of Reconnaissance and Habitat Improvement, March 16. Ross H. Norr was appointed clerk-stenographer on the Bear River Refuge, Utah, on February 27 to succeed Frank P. Giles.

The appointment of three new patrolmen-laborers has recently been approved. Arthur G. Homestead began work February 16 at the Des Lacs Refuge in North Dakota, and on March 8, the temporary appointments of Sam Mizell and Jesse B. Gay on the Okefenokee Refuge, Ga., were approved.

Transfers.--The transfers of Dr. George B. Saunders and John J. Lynch to the Division of Wildlife Research were effected March 1.

GAME MANAGEMENT

Addresses Joint Division Conference.--Mr. Young attended the North American Wildlife Conference at St. Louis in March and addressed a joint conference of the Divisions of Wildlife Research and Migratory Waterfowl and later spoke at separate meetings of the two divisions. After the conference Mr. Young went to the Wichita Mountains Wildlife Refuge, Okla., where he inspected E. C. W. and W. P. A. projects and conferred with Superintendent George E. Muchbach on plans for obtaining antelope. From this refuge Mr. Young went to Denver, Colo., and conferred with D. D. Green and F. E. Garlough before they left for the Hawaiian Islands, where they will assist in rodent-control projects. He also discussed the St. Louis wildlife conference before the Denver Chapter of the Izaak Walton League, and on invitation of Colorado sportsmen was present at the State capitol when Governor Ammons signed the game commission bill just passed by the State legislature.

From Denver, Mr. Young went to Cheyenne, Wyo., for a conference with District Agent Adolph Hamm and his assistants. On his return trip to Washington, he conferred briefly with Game Agent George Riddick, who was on his way to Fremont, Nebr., to join other Bureau agents and State enforcement officials in enforcement work along the Missouri River.

Returns from Alaska Inspection Trip.--W. E. Crouch, assistant chief of the Division of Game Management, returned to Washington, April 19, after observing law-enforcement activities in Alaska, and attending the annual meeting of the Alaska Game Commission. He was favorably impressed with the work of the Alaska Game Commission and the law enforcement activities of the Alaska game wardens. Although there are only 12 wardens their investigations have brought about numerous arrests of game-law violators and their subsequent convictions in court. Mr. Crouch also reported the passage of bills by the Territorial Legislature for the establishment of a fur-animal experiment station and for the appropriation of \$15,000 to cooperate with the Bureau in wolf control. He left for Alaska February 20, and returned to Seattle, Wash., March 23. Before returning to Washington, he inspected several wildlife refuges and proposed sites for refuges in Pacific Coast States and in the Southwest.

Game Management Agents and Game Preserves

Feed Elk at Wyoming Refuge.--The feeding of elk on the Elk Refuge, Wyo., began March 3, on the tract near the headquarters and on the Germain tract within the refuge on March 5. Approximately 4,000 elk were on the two feeding grounds, and local game wardens who made a snowshoe trip in the Gros Ventre region said they saw about 5,000 elk there and reported that the elk wintering in outlying districts were coming through the winter in good condition. The State Game Department of Wyoming is feeding two small bands of elk south of Jackson, and a few animals at the Elk ranch near the Buffalo river. On March 1, 14 mule deer appeared on a hill just east of refuge headquarters, and it is reported that 200 to 400 deer may be seen in an hour's travel by automobile from Jackson through the Hoback canyon. Feeding operations for this season were discontinued on April 12.

Game Preserve Name Changed.--The name of the Niobrara Game Preserve has been changed to Fort Niobrara Game Preserve in order to avoid confusion with a State preserve with a similar name. The similarity of names frequently has caused delays in the delivery of mail and supplies at the two preserves.

Disease and Coyotes Kill Antelope.--A buck antelope, the last of a group of adults at the Fort Niobrara Game Preserve, Nebr., was killed by coyotes February 22, and the last of the fawns brought to the preserve last spring died February 25. The fawns had been obtained from South Dakota and Wyoming for establishing a nucleus herd in the south pasture of the preserve. Coyotes were responsible for the loss of 6 fawns, and the other 18 succumbed to "lumpy jaw" and other ailments.

Addresses Biological Society.--Frank L. Earnshaw, assistant in refuge administration, spoke on "Federal Game Protection" at the meeting of the Biological Society of Washington, D. C., at the Cosmos Club, on the evening of March 6. He outlined briefly the laws that have been enacted for the protection of game in the United States and described the big-game preserves administered by the Survey. Other speakers of the evening were Miss Phoebe Knappen, of the Section of Food Habits Research, who spoke on "Queer Things Birds Eat," and Raymond L. Soderberg, of the Migratory Waterfowl Division, who spoke on the progress made in the establishment of refuges for migratory waterfowl.

Texas Longhorn Calves Born.--Four Texas longhorn calves have been born this spring at the Fort Niobrara Game Preserve, the first births of this species there. The first calf was born February 4, and by March 31, the other three heifers in the herd gave birth to calves. One of the calves is a male. Geno A. Amundson, in charge of the preserve, reports that the first-born calf has unusual markings. Its face is white with deep red circles around each eye. The muzzle appears black from a distance, but on closer inspection it is a deep red and the rest of the body is spotted red and white. These marks, says Mr. Amundson, give the animal the appearance of a painted clown. The longhorns, including a bull, a steer, and four heifers, were transferred from the Wichita Mountains Wildlife Refuge last May, and have adjusted themselves very well to their new environment.

Buffalo in Alaska Increase.--The herd of 23 buffalo shipped to Alaska in June 1928 from the National Bison Range, Mont., has increased to about 100 animals, according to 1936 estimates, the latest available. The animals were donated to the Alaska Game Commission, and an appropriation by the Territorial Legislature covered shipping costs. Of the 23 buffalo, 19 were liberated near McCarty, southeast of Fairbanks, and four retained at the reindeer station of the Bureau at College, Alaska. One of the four died and in 1930 the remaining three were liberated southeast of Fairbanks.

Completes 30 Years Service.--Frank L. Earnshaw, assistant in reservation administration, on March 31, completed 30 years of service with the Biological Survey. Having entered the Bureau as a clerk on April 1, 1907, he is one of the few who have the distinction of having served under the first and each succeeding Chief of the Bureau. Members of the Division of Game Management entertained Mr. Earnshaw at luncheon, after which Chief Gabrielson and Mr. Young congratulated him on his long service.

Reports Waterfowl Arrival.--George M. Riddick, game management agent at Aberdeen, S. Dak., reports that the arrival of waterfowl in southern Idaho along the Snake River was observed early in February. By February 12, the migration had apparently reached its peak and on February 25 most of the ducks had gone farther north. Canada geese began arriving about February 20, and at the end of the month hundreds of them could be seen along the Snake River. Many geese nest on the islands in this river, and during the summer their young are a common sight.

Cooperates With Crow Indian Agency.--During the last part of February F. Roahen, game management agent stationed at Billings, Mont., showed some of the Bureau's motion pictures at the Crow Agency mid-winter fair. Both the Indians and the white men who saw the pictures appeared greatly interested.

Completes Arctic Patrol.--Alaska Game Warden Grenold Collins has returned to Juneau, from a four-months' Arctic patrol trip which took him to Cape Halkett, about 130 miles east of Point Barrow, the northernmost part of Alaska. His trip was the first patrol made under the commission in that northern region, and he collected considerable information on the condition of game and fur animals in the far North. Mr. Collins traveled a total of 3,612 miles, 2,000 miles by airplane, 1,149, by dog team, and about 500 miles by boat.

Overhaul Patrol Vessel.--Following six weeks patrol of Alaskan waters during the early part of the first quarter of this year, the patrol vessel Seal proceeded to Seattle on March 16, with W. E. Crouch, assistant chief of the Division of Game Management, and Chief Clerk L. E. Hendrickson, of the Alaska Game Commission, on board. After an overhauling at Seattle, the Seal will return to Juneau and then proceed to the Gulf of Alaska to patrol Cook Inlet, Kodiak Island, and both sides of the Alaska Peninsula to Crystal Bay. Later in the summer it is planned to have the vessel return to southeastern Alaska for regular patrol duty in that vicinity.

Alaska Game Wardens Busy.--A record for the number Alaska Game Law violations reported by game wardens during a quarter period was established during the quarter ending March 31. As the result of intensive patrol work the warden reported a total of 101 cases of violations. During the quarter ending September 30, 1936, 60 cases were reported, and during the following quarter ending December 31, 92 cases were reported. For the quarter just ended jail sentences imposed amounted to 1,520 days, and 42 firearms and 82 traps were seized. A total of 142 skins and 17 carcasses of game animals also were confiscated. The estimated value of the seized articles is \$3,200, and the total of fines \$2,744. Delinquent licenses fees collected amounted to \$700, bringing the total of fines, fees, and value of seizures for the quarter to \$6,644.

Inspects Warden Stations.--Clarence J. Rhode, acting assistant executive officer of the Alaska Game Commission, left Juneau on January 4, on the Coast Guard cutter Tallapoosa on a tour of inspection of interior warden stations. After a few weeks with Warden Gallwas and Commissioner Simons on the Kenai Peninsula, he traveled by highway to Anchorage to confer with Warden O'Connor, and from there he went by airplane to Fairbanks for a conference with Chairman Reed and Warden White. At Fairbanks, he also met with the Tanana Valley Sportsmen's Association, and exhibited the Commission's motion pictures. On February 14 he proceeded to Anchorage and with Warden White represented the Commission at a fur carnival. During the week of the carnival an exhibit showing the proper handling of furs was shown by the Commission. The Commission's motion pictures on wildlife also were shown daily to large crowds. Mr. Rhode returned to Juneau on February 25.

Musk Oxen in Good Shape.--In a letter written to the Bureau on February 24, Paul Ivanoff, a representative of a commercial company of Nome, Alaska, and stationed on Nunivak Island, says: "Musk oxen herd doing fine this past winter. There are 6 musk oxen across the bay around the sand dunes and are feeding among the dunes all winter. The natives are fond of them. They occasionally go there and watch them feed for they are very tame. About 10 miles inland are 18 musk oxen and others are scattered around the island." Nunivak Island is 40 miles wide and 70 miles long.

Waterfowl Show Increase.--Game Management Agent Clyde Licking, of Kearney, Nebr., reports that estimates of Canada geese in his territory this season show a gratifying increase over the number observed last season. Since the waterfowl censuses, several flocks of geese also have been reported on the river between Kearney and North Platte. Earlier no geese were reported.

Speaks on Alaskan Wildlife.--During the past quarter Frank Dufresne, executive officer of the Alaska Game Commission, addressed the Territorial Legislature, the Juneau Chamber of Commerce, the Federal Employees Association, and local civic groups on the wildlife resources in the Territory.

Dispose of Surplus Big-Game Animals.--During the past season surplus big-game animals and longhorns in the herds on the big-game preserves administered by the Survey have been disposed as follows: One hundred and ten buffalo, National Bison Range, Mont.; 25 buffalo and 12 elk, Fort Niobrara Game Preserve, Nebr.; 37 buffalo, 24 elk, and 18 longhorns, Wichita Mountains Wildlife Refuge, Okla.; and 3 buffalo and one elk, Sullys Hill Game Preserve, N. Dak., totaling 175 buffalo, 37 elk, and 18 longhorns. This nearly completes the authorized disposal of all the surplus big-game animals, except some buffalo on the Wichita Mountains Refuge, several of which have been spoken for, and some elk on the Sullys Hill Preserve.

Buffalo Calves Born.--The first buffalo calf this season on the Wichita Mountains Wildlife Refuge was born March 31, and on April 2, there were 13 calves in the herd. The calving season there occurs several weeks earlier than on other game preserves maintained by the Survey.

Wichita Easter Sunrise Service Held.--The annual Easter sunrise service and pageant was held March 28 on the Wichita Mountains Wildlife Refuge, Okla., on the site developed for the purpose. Cold weather held the attendance down to 40,000. By daylight on Easter morning the temperature had dropped to 19 degrees above zero, and four persons in the pageant cast were overcome with the cold and had to be taken to shelter. More than 100,000 persons were in attendance at the service in 1936 when warmer weather prevailed. On the morning of March 29, four inches of snow covered the refuge and more snow fell the greater part of that day.

Gray Fox Captured.--A fox was captured February 12 by Trapper Andy Campbell in the Sunset campground on the Wichita Mountains Wildlife Refuge, Okla. After being photographed, it was released and has been identified as a gray fox (Urocyon cinereoargenteus).

E. R. Sans Injures Knee.--E. R. Sans, superintendent of the Charles Sheldon Antelope Refuge, Nev., slipped on frozen snow early in February and wrenched a knee. It was necessary to have the leg put in a plaster cast. Mr. Sans hoped to have the cast removed early in April.

Law Enforcement

Cases Terminated.--Four cases of hunting migratory waterfowl by means of bait and six others of hunting by means of bait and live decoys were closed in Federal court at Springfield, Ill., on April 7. Entering pleas of guilty, the first four defendants were fined \$10 each and the six others \$25 each. Costs of \$35 also were assessed in each case.

Among the cases terminated and fines imposed in Federal court for the District of Maine during January and February were: Killing ducks in excess of daily bag limit and with gun not properly plugged, \$100; killing duck from motorboat, \$50; hunting woodcock with gun not properly plugged, \$10; and killing yellowlegs, \$10. Cases terminated with fines at the March term of Federal court for the District of Wyoming were: Hunting ducks after 4 p.m., \$20; exceeding bag limit on ducks, \$20; and hunting without migratory-bird hunting stamp, \$20.

In the Federal court for the Western District of Texas the following cases were recently disposed of: Killing doves in close season, \$5 fine; and use of unplugged guns, \$10 fines in four cases. In two cases the defendants were cautioned by the court against further violations, and in three cases involving the use of unplugged guns the defendants were warned against repeating the violations.

Had Too Many Ducks.--Four cases involving the killing of wild ducks in excess of the daily limit were disposed of in Federal court at Elizabeth City, N. C., by pleas of nolo contendere on March 22. The defendants, who had a total of 45 ducks, were fined \$1 and costs of \$12.50 each.

A hunter arraigned in Federal court at Las Vegas, Nev., on a charge of killing wild ducks during close season, was fined \$100. The court in assessing the fine reminded the hunter that wild game must be protected.

Two persons arraigned in Federal court at Wichita, Kans., on March 8, on charges of using a motorboat to concentrate wild ducks pleaded guilty and were fined \$50 each.

Baited Doves.--Six persons charged with hunting doves by means of bait pleaded guilty when arraigned in Federal court for the Eastern District of Kentucky, January 11. Four were fined \$50 each and costs, and two \$10 each and costs, the costs totaling \$20 in each case. Another hunter arraigned at the same time on a charge of hunting doves with a gun not properly plugged was fined \$10 and assessed costs of \$20.

Fined in State Court.--A special State deputy found 3 ducks and 16 pheasants on January in a commercial establishment in Kansas City, Mo. After appearing in a State court on February 1, the manager of the establishment pleaded guilty and was fined \$50.

Meets Irate Hunter.--On the evening of January 26 a game-management agent in Colorado apprehended a hunter in a field in possession of a dead duck. The hunter pushed his gun against the stomach of the agent, but the agent took the gun away from him. Later in State court the hunter was fined \$25 and costs of \$2.50.

Used Improper Gun.--A hunter arraigned in Federal court at Springfield, Ill., on April 6, on a charge of hunting wild ducks with a gun not properly plugged, was fined \$10 and costs of \$35.

Two Indicted.--The Federal grand jury for the Southern District of California, on March 31 returned indictments against two persons charging them with transporting wild ducks from Mexico into the United States during March contrary to the Tariff Act of 1930 and to the Migratory Bird Treaty Act.

Arrested in Deer Case.--A recent Lacey Act case involves alleged unlawful killing of a deer in Michigan and its alleged illegal transportation to Ohio. The defendant has been arrested and furnished a bond of \$1,000 for appearance in Federal court.

Husband and Wife Punished.--Two Migratory Bird Treaty Act cases involving the sale of 16 ducks by a hunter and his wife were closed in Federal court at New Orleans, La., on April 6, with the sentencing of the husband to 60 days in jail and the placing of his wife on probation for 5 years. Both pleaded guilty.

Placed on Probation.--Five cases of unlawful hunting and trapping of animals on Mattamuskeet Lake Migratory Waterfowl Refuge were disposed of at the March term of the Federal court for the Eastern District of North Carolina. In 4 cases the defendants were placed on probation for one year and in the other case the trespasser was sentenced to serve 30 days in jail.

Predator and Rodent Control

Reports on Sylvatic Plague.--Albert M. Day, in charge of the Section of Predator and Rodent Control, presented a paper before the North American Wildlife Conference at St. Louis, Mo., in March on the sylvatic plague. Mr. Day pointed out that although there does not appear to be any great danger that many persons will contract the disease from animals, as in recent years there have been only one or two deaths early, there is need for further research and maintenance of an organization for controlling the rodents in areas where the plague foci are established. With its field organization working in the control of wild-animal hosts of the parasites that transmit the disease to man, the Bureau is participating in the general campaign to check the disease. Until 1934 the plague was known to exist only in the coastal regions of California, but since then it has appeared at widely separated points in California, Oregon, Idaho, Montana, Utah, and Nevada. It has been definitely identified in ground squirrels, the California, Oregon, Columbian, Richardson, Nevada, and Uinta, in Sierra chickarees, Utah rock squirrels, wood rats, white-footed mice, woodchucks, and in Utah prairie dogs. Lice as well as fleas carried by the rodents serve as carriers of the disease.

Inspect Hawaiian Rat Abatement Project.--D. D. Green, of the Predator and Rodent Control Section, and F. E. Garlough, in charge of the Control Methods Research laboratory, Denver, Colo., sailed from San Francisco on March 13, for the Hawaiian Islands to inspect the progress of cooperative rat-control projects. Improved types of bait being used in this campaign were developed under Mr. Garlough's direction. Casings such as used in making breakfast sausages are filled with a mixture of meat, grain, and toxic materials. They are then cut into short lengths, sealed in cans, and shipped to various points in Hawaii. To expedite the production of bait the Bureau recently purchased machinery for a local bait-mixing station at Honolulu.

Sugarcane, pineapple, and coffee planters are rapidly turning their rat-control problems over to the cooperative organization being directed by H. G. Hanson, who was transferred from California to Hawaii a year ago. Sugar planters on Kauai Island recently decided to turn all the rat-control work over to the Bureau and voted a budget of approximately \$50,000 for defraying expenses of control on approximately 40,000 acres. The present program on the islands of Kauai, Hawaii, and Maui will require approximately 60 tons of canned bait and 24 tons of dried mixed grain.

Investigate Wolf Depredations.--H. H. Gubser, assigned to special wolf control work in Alaska on July 15, 1936, recently completed investigations throughout the reindeer area of the northwestern part of the Territory, and accompanied most of the time by Glen Briggs, unit manager of the Reindeer Service of the Department of the Interior, traveled approximately 1,100 miles by dog team and 1,400 miles by airplane over the ranges of 7 reindeer companies. This work is being conducted in cooperation with the Indian Service and the Reindeer Service.

In these travels the two men counted approximately 20,000 reindeer; in a similar investigation two years previous more than 63,000 animals were counted. On all the ranges visited the presence of predatory animals, mostly wolves, was in evidence. Indications are that attacks by wolves have scattered most of the herds and have caused many of the reindeer to intermingle with native caribou. A mixed herd of 75,000 to 90,000 animals was seen in the interior of Alaska near the head of Noatak River, far from Eskimo villages. Owners of small herds are seriously affected by the depredations as they depend upon the reindeer for food, clothing, and transportation. The Territorial Legislature recently authorized an expenditure of \$7,500 this year for cooperation with the Biological Survey in the employment of more men to demonstrate scientific trapping methods to the Eskimos, resident trappers, and prospectors.

Use of Grazing Fees Specified.--The Utah Legislature recently enacted legislation that authorizes local advisory boards to direct the expenditure of fees collected by each grazing district in connection with the grazing of livestock on public domain -- for range improvement and maintenance, control of predatory animals, control of rodents, extermination of poisonous and noxious weeds, purchase or rental of lands that will benefit such grazing districts, and/or for the general livestock grazing welfare of the grazing district. This legislation, it is pointed out, will assist livestock owners in financing local campaign for controlling predators and rodents that affect their herds and public range.

Capture 9 Mountain Lions.--District Agent R. E. Bateman, of Billings, Mont., reports that Hunter C. E. Beebe and his two sons and Junior District Agent Lawrence Cheney captured 9 mountain lions in a 10-day hunt during February, in a small area of the Lolo National Forest, near St. Regis. A young female lion, weighing about 75 pounds, was taken alive and later shipped to the National Zoological Park in Washington, D. C. Another lion trailed by Hunter Lawrence Farley in Flathead County, ran into a deep cave in a rocky cliff and refused to leave. Hunter Farley plugged the entrance to the cave and telephoned for assistance. The following day Dr. C. G. Sundelius and his brother appeared, but all three men were unsuccessful in getting the lion out. Dr. Sundelius then entered the cave. Using a flashlight he crawled about 25 feet, located the lion and killed it after firing several shots.

Hunter Leisering Dies.--H. L. Lesiering, 65, one of the oldest hunters employed by the Bureau, died at his home at Cliff, N. Mex., February 22. He had been in ill health for some time, but in spite of his illness he continued to work. Mr. Leisering was first employed as predatory-animal hunter in May 1924, and except for eight months in 1926 he has worked continuously as a hunter.

Jaguar Seen in New Mexico.--Hunter Emmett Bannerman, of the New Mexico district, reports seeing and trailing a jaguar during February on the rim of the San Andreas Mountains on the eastern boundary of the Jornada Range Reserve. The animal outdistanced Bannerman's dogs in the rough country.

Coyotes Infected With Rabies.--District Agent E. M. Mercer, of Phoenix, Ariz., reports a general outbreak of rabies among coyotes in southwestern Arizona during the breeding season. Three infected animals were taken during March between Gila Bend and White Tank Mountains north of the Gila River. A rabid coyote seen running wild through a sheep camp near Litchfield, Ariz., snapped at one of the herders, but escaped before it could be killed. Stockmen also have reported seeing rabid coyotes along the Gila River between Hassayampa and Roll, Ariz.

Inspect Mouse-Control Operations.--Accompanied by District Agent E. M. Mills and by H. J. Spencer, of the Control Methods Research Laboratory, Colo., D. D. Green spent the latter part of February in various sections of Massachusetts, New Hampshire, and Vermont conferring with county agents and extension directors on investigation work in orchard-mouse control. On February 25, Mr. Green attended a conference of the executive council of the Women's Municipal League of Boston, at which plans were discussed for a city-wide rat control campaign. He urged this group to inaugurate a campaign for permanent rat control, and on the same day he also conferred with the president of the Massachusetts Fruit Growers' Association on plans for a permanent cooperative orchard-mouse control project in Massachusetts.

Mr. Spencer has been conducting demonstrations in mouse control in the New England territory for several months, and at meetings of orchardists he explained the habits of mice, means of detecting their presence in orchards, proper methods of placing bait, and the comparative value of vegetable and grain baits. The orchardists, especially those who have been suffering heavy losses from mice, appeared to appreciate this service highly and were pleased with the prospects of a permanent cooperative control project in their section.

After attending a control demonstration an orchardist at Springfield, Vt., said to Mr. Spencer, "Distinctly relieved with saving of \$1,499 to show for control work." This orchardist had planned to protect his 5,000 apple trees next winter with wire mesh guards, which would have cost him about \$1,500. After the demonstration he said he believed he could get more effective results from using the prescribed control methods than with wire guards, and with no labor costs his main expenditure would be \$1 for poison.

Mr. Spencer reports that the Bureau can now show orchardists how mice can be controlled in orchards where the mulch system of tree culture is in use. This should be particularly helpful to New Hampshire orchardists considering the discontinuance of the mulch system because of the difficulty encountered in controlling tree-girdling mice. In recent months these orchardists have reported increased damage to their trees from mice. The deep mulching of orchard soil is regarded as the best way to prevent "corky core", or drought spot in apples.

Both Mr. Spencer and Mr. Mills participated in the program of the Vermont Apple Growers Conference held at Rutland, April 8 and 9, and in a discussion answered suggested questions that had been printed in the program.

Counties Plan Rodent Control.--Plans are being developed in Colorado for clearing rodent-infested lands under authority of the State rodent-control law. Control districts are being organized under county supervision so that all infested lands may be treated simultaneously. Delta County has appropriated \$4,250 for the work; Montrose, \$2,800; San Miguel, \$1,000; Saguache, \$2,500; Chaffee, \$600; and Park, \$600. In addition, several other counties are appropriating funds for clean-up work in districts formerly treated.

Compiles Livestock Losses.--District Agent W. E. Riter, stationed at Denver, Colo., recently compiled figures obtained from the Forest Service showing livestock losses on national forests in Colorado during the four grazing seasons from 1932 to 1935. These figures show a total of 137,202 cattle, horses, and sheep lost from all causes; poisonous plants caused the death of 39,204 animals; predatory animals, 42,838; diseases, 15,635, and other causes, 39,525. Of the animal losses due to predators 84 were reported to have been cattle over 6 months of age, 263 calves less than 6 months of age, 5 horses, and 42,486 sheep.

Rat Control Campaigns Produces Results.--Effective results of rat control campaigns carried on in Region 7, comprising Virginia, North Carolina, South Carolina, Georgia, and Florida, have been reported for the last quarter by District Agent George B. Lay. In this region the wharf rat, the roof or black rat, the cotton rat, and field mice are rodents that cause heavy economic losses. During the quarter 42 rat campaigns were carried on in this region, and a total of 8,086 pounds of bait were distributed on 19,987 premises at the total cost, including labor, of \$1,567.66. In addition to the economic gains resulting from these control campaigns, endemic typhus outbreaks have been checked in towns in North Carolina, South Carolina, and Virginia, where the work was carried on. Health officials have cooperated and approved of the methods of control carried on by the Survey.

Conduct Rat-Control Campaign.--District Agent G. C. Oderkirk reports that a group of seven counties of Ohio recently participated in an extensive rat-control campaign during which 4,725 pounds of bait were distributed. A portable grinding and mixing machine was used in preparing fresh baits of frozen fish and cheap cuts of meat. Several additional campaigns in Ohio are contemplated early next fall.

THE SURVEY

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U. S. Department of Agriculture

GENERAL NOTES

Attends Forestry-Wildlife Conference.—After visiting the Jones Beach Sanctuary and the Flanders Club area on Long Island, N. Y., on May 12 and 13, Dr. Gabrielson attended a forestry-wildlife management conference held at Ithaca, N.Y., under the auspices of the New York State Department of Conservation on May 14 and 15. He visited the Cornell University reforestation area at Varna, N.Y., reforestation and game-management areas in Chenango and Madison Counties, N.Y., and the Connecticut Hill Game Refuge. On May 18, with A. C. Emery, he visited the Montezuma marsh area in New York.

Urges Wildlife Consideration.—On April 26 Associate Chief Henderson appeared at the 32nd annual convention of the National Rivers and Harbors Congress in Washington, D. C., and presented a paper on "The Correlation of Water Conservation and Wildlife Conservation" that Chief Gabrielson had prepared for the convention, but was unable to present. "The biological side of flood control and general water conservation should not be overlooked in any program or in projects involving the expenditure of national funds," the paper pointed out. "The needs of wildlife and its conservation are best served by holding rain near where it falls and by the maintenance of comparatively stable water levels. Lakes and marshes should be retained and made to produce fur, fish, and fowl, and recreational facilities on a much greater scale than are available to the inhabitants of many communities at the present time."

Participate in Mammalogists Meeting.—Several scientific papers were presented by members of the Bureau at the nineteenth annual meeting of the American Society of Mammalogists, held at the U. S. National Museum and the Department of Agriculture, May 4 to 8. An illustrated talk on "Developments in Federal Big-game Refuges" was given at the morning session on May 6 by Mr. Young, chief of the Division of Game Management, and at the afternoon session a paper on "Population Studies With Particular Reference to Beavers" was given by John Pearce, of the Division of Wildlife Research, stationed at New Haven, Conn. At the morning session on the following day Mr. Young gave an illustrated talk on "Wolf Hunting With a Camera." Major E.A. Goldman gave an unscheduled talk on "The Colorado River as a Barrier in Mammalian Distribution." Motion pictures by the Bureau, Forest Service, and a private concern were shown at the afternoon session held in the Agricultural Auditorium in the South Building.

Vernon Bailey, collaborator and retired naturalist of the Survey, presented two papers, one on "Maryland Muskrat Marshes", and another on "Improvements in Traps" during the annual meeting. Associate Chief Henderson was chairman of the local committee on arrangements for the meeting. On Sunday, May 9, some of the mammalogists who remained in Washington after the close of the meetings visited the Patuxent Research Refuge in nearby Maryland.

Newly elected officers of the society are: Dr. Joseph Grinnell, of the University of California, who succeeds Dr. H. E. Anthony, of the American Museum of Natural History, as president; Edward A. Preble, retired naturalist of the Survey, and Dr. H. H. T. Jackson, of the Division of Wildlife Research, vice-presidents; W. H. Burt, of the University of Michigan, corresponding secretary; Robert K. Enders, of Swarthmore College, recording secretary; and Miss Viola S. Schantz, of the Division of Wildlife Research, treasurer.

Struggle for Wildlife Conservation Told.--Critical periods in American wildlife conservation are graphically related by Dr. Thomas Gilbert Pearson, president emeritus of the National Association of Audubon Societies, in his recently published autobiography entitled, "Adventures in Bird Protection." The difficulties the author and other conservationists, including officials of the Survey, encountered in bringing about protection for birds and other wildlife are explained at length. This covers the struggles that preceded the ratification of the migratory bird treaty with Great Britain with respect to Canada, and subsequent passage by Congress of the enabling act. Although the treaty made it illegal to sell these birds, Dr. Pearson says, "another menace to wild-fowl was rising like a dark cloud in the West" as a result of the drainage of waterfowl areas. Many persons were aware of this danger, "but it was Dr. E. W. Nelson of the Biological Survey," says the author, "who focused public thought on what was happening..." Following a detailed account of the passage of the Migratory Bird Conservation Act authorizing appropriations for acquisition of feeding, nesting, and resting areas for waterfowl, Dr. Pearson explains some of the obstacles that were overcome in bringing about restricted hunting of waterfowl. A goodly portion of the autobiography also tells of the establishment of Federal refuges for big game and some of the problems of big-game management.

ADMINISTRATION

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" (Admin. F. O.) series:

- No. 66. Amendment No. 1. Personal telegraph messages sent collect - method of handling. (March 30.)
- No. 88. Revised. Renewal and preparation of informal agreements. (April 22.)
- No. 89. Revised. Procedure in renewal and preparation of leases. (April 14.)
- No. 118. Amendment No. 1. Accountability for U. S. Government tax exemption certificates. (January 18.)
- No. 122. Amendment No. 1. Application of certain provisions of permanent leave regulations to employees carried under emergency appropriations and under the \$6,000,000 (NIR) appropriation. (February 23.)
- No. 133. Amendment No. 1. Additional contract for service-station deliveries of gasoline and lubricating oil for period ending June 30, 1937. (February 12.)
- No. 145. Instructions in the proper care, inspection, maintenance and operation of Government-owned equipment. (January 12.)

- No. 146. Ammunition and arms. (January 12.)
- No. 147. Public expression derogatory of conservation organizations. (January 14.)
- No. 148. The President's recommendation on reorganization. (January 15.)
- No. 149. Classification of Bureau property. (January 19.)
- No. 150. Procurement of battery cable units for the period December 16, 1936, to June 30, 1937. (January 19.)
- No. 151. Physical examination required before probationary appointment. (January 21.)
- No. 152. Changes in Procurement Division contracts. (January 26.)
- No. 153. Estimate of requirements for coal in fiscal year 1938. (January 27.)
- No. 154. Procurement of batteries for use in Government-owned automobiles. (February 1.)
- No. 155. Permission required to contact employees of other Federal agencies with a view to transfer or appointment. (February 1.)
- No. 156. Procurement of incandescent electric lamps for the period ending August 31, 1937. (February 1.)
- No. 157. Provision regarding applicable taxes for inclusion in all bids. (February 1.)
- No. 158. Procurement of dynamite and exploders for the period ending June 30, 1937. (February 6.)
- No. 159. Use of types of motion picture film. (February 11.)
- No. 160. State appropriations (for predatory animal control). (February 12.)
- No. 161. Changes in Procurement Division contracts. (February 13.)
- No. 162. Bureau policy on predator and rodent control. (February 19.)
- No. 163. Request for report on cooperation with National Emergency Council. (February 20.)
- No. 164. Changes in Procurement Division contracts. (March 3.)
- No. 165. Changes in Procurement Division contracts. (March 10.)
- No. 166. Curtailment of Clip Sheet distribution. (March 12.)
- No. 167. Typewriter ribbons and carbon papers - stock items. (March 15.)
- No. 168. Migratory Bird Treaty with Mexico. (March 19.)
- No. 169. Changes in Procurement Division contracts. (March 29.)
- No. 170. Procurement of tires and tubes for the period April 1, 1937, to September 30, 1937. (March 30.)
- No. 171. Automobile liability insurance. (March 30.)
- No. 172. Excise tax and exemption certificates in connection with purchases under Procurement Division contracts of "Parts, Motor Vehicle, Passenger, Truck and Tractor--Class 8, for the period July 1, 1936, to June 30, 1937." (April 6.)
- No. 173. Preparation and submission of annual efficiency ratings of all classified clerical field employees. (April 12.)
- No. 174. Control operations under emergency appropriations. (April 12.)
- No. 175. Check mailing slip - Department Form No. 105. (April 13.)
- No. 176. Issuance and acceptance of bids involving payment from funds expiring June 30, 1937. (April 17.)
- No. 177. Changes in Procurement Division contracts. (April 21.)
- No. 178. Salaries of hunters and rodent control workers hired under field allotments. (April 21.)
- No. 179. Changes in Procurement Division contracts. (May 5.)

PUBLIC RELATIONS

Addresses Izaak Walton Convention.--Discussing "The Future of Our Waterfowl", Colonel Sheldon addressed the fifteenth annual convention of the Izaak Walton League of America in Chicago on April 30, representing Dr. Gabrielson, who was unable to attend. "Three years ago", said Col. Sheldon, "we were low in ducks and low in spirits. Today we have a few more ducks and much more hope for their future, but in a very real sense the patient must be kept in a suitable environment, nourished with an abundance of food and water, and guarded against the shock of long open seasons and shooting abuses for many years to come." He discussed the recent history of waterfowl conservation, described the Bureau's restoration program, and paid tribute to the leadership of Dr. Gabrielson. Col. Sheldon concluded with "the plain warning" that "success depends entirely upon how well the program is supported by the sportsmen and the conservationists of this nation."

Howard Zahniser was also present at the convention to supervise an exhibit on waterfowl conservation. Field men of the Survey in attendance at one time or another included Ray C. Steele, superintendent of the Upper Mississippi River Wildlife and Fish Refuge; George Tonkin, regional director; John M. Martin, U. S. game management agent in Illinois; J. E. Thompson, U. S. game management agent in Iowa; and Gill Gigstead, junior refuge manager at Havana, Ill.

Duck Stamp Pictures Widely Used.--Many newspapers and magazines have printed photographs of the 1937 migratory-bird hunting stamp, the design for which was drawn by J. D. Knap, New York City artist. A large number of the requests came from editors who conduct columns for stamp collectors as well as sporting editors and rotogravure editors. At Madison, Wis., photographs of stamps issued thus far and the forthcoming stamp for 1937 were shown in a public exhibit by a local stamp club. More than 500 collectors saw the exhibit and appeared greatly interested in the duck-stamp series. The club has asked that duck stamps be displayed again at its 1938 exhibit.

Exhibit in Denver.--A diorama showing C. C. C. work on a Biological Survey refuge is included in a wildlife exhibit to be shown at the annual meeting of the United States Junior Chamber of Commerce in Denver, Colo., June 16 to 19.

Broadcasts.--Continuing a Farm and Home Hour series, Howard Zahniser on April 23 and May 14 discussed the history of Federal bird refuges.

Quail Picture Popular.--Thirty-five years ago W. D. Gay, now of Omaha, Nebr., successfully photographed a quail at sunrise on her nest in a strawberry patch in Essex County, Iowa. The photograph was turned over to the Bureau and was one of the first to be placed in its photographic files. Since then many newspapers, magazines, textbooks, and other publications have used the photograph. One newspaper even requested

its use in connection with a Mother's Day article. The picture is sharp and lends itself well for illustration purposes. Recently a request for three prints of a "quail on nest in strawberry patch at sunrise" was received from Omaha, Nebr., signed "W. D. Gay." This Mr. Gay is the same person who took the photograph 35 years ago. A requisition for the prints was filled out immediately.

Official Publications.---Copies of which may be obtained from the Division of Public Relations, have been issued as follows:

Laws and joint regulations of the Secretaries of the Interior and Agriculture relating to the protection and administration of game ranges, or wildlife refuges, established in conjunction with the organization of grazing districts under the Taylor Grazing Act. Service and Regulatory Announcement B. S. 86, 5 pp. April 1937. Received Apr. 22.

Self-feeding system for market rabbits. By George S. Templeton, Director, United States Rabbit Experiment Station, Section of Fur Resources, Division of Wildlife Research. Mimeographed Leaflet BS-85, 9 pp. March 1937. Received Apr. 7.

Sanitation in domestic rabbitries. By Frank D. McKenney, Associate Veterinarian, Section of Disease Control, Division of Wildlife Research. Mimeographed Leaflet BS-86, 4 pp. April 1937. Received Apr. 19.

Some accomplishments of the cooperative research units: A summary to January 31, 1937. By H. H. T. Jackson, Senior Biologist, in charge, Section of Wildlife Surveys, Division of Wildlife Research. Mimeographed Leaflet BS-87, 10 pp. April 1937. Received Apr. 26.

Outside Publications.---Articles by members of the Survey appearing in outside publications have been reported as follows:

Aldous, Clarence M. What the university is doing for conservation. Conservation Week in the Schools of Maine, p. 12. Apr. 15, 1937.

Cottam, Clarence. Mendall's "The Home-life and Economic Status of the Double-crested Cormorant" [by Howard L. Mendall.. Maine Bull. 39: 1-159, Oct. 1936. Univ. Maine Studies, 2d ser. No. 38, Orono, Maine]. (Review.) Auk 54: 213-214. Apr. 1937.

Dalke, Paul D. Food habits of adult pheasants in Michigan based on crop analysis method. Ecology 18: 199-213, illus. Apr. 1937.

Gabrielson, Ira N. Contribution to wildlife. Happy Days [C.C.C. paper] 4 (49): 14. Apr. 17, 1937.

Jewett, Stanley G. The western mockingbird in Oregon. Condor 39: 91-92. Mar./Apr. 1937.

McAtee, W. L. Survival of the ordinary. Quart. Rev. Biol. 12: 47-64, illus. Mar. 1937.

Marshall, William H. Double-crested cormorant nesting on the Bear River Refuge. Condor 39: 36. Jan./Feb. 1937.

Munch, J. C.; Ward, J. C.; Mills, E. M.; Buck, R. E.; and Jarvis, F. N. Red squill, IV: Bioassay methods. Jour. Amer. Pharm. Assoc. 26: 27-29. Jan. 1937.

- Munch, J. C.; Ward, J. C.; and Garlough, F. E. Strychnine, VII: The toxicity of nux vomica preparations. Jour. Amer. Pharm. Assoc. 26: 29-31. Jan. 1937.
- Neff, Johnson A. Nesting distribution of the tri-colored redwing. Condor 39: 61-81, illus. Mar./Apr. 1937.
- Sheldon, H. P. Guns and game: Riflemen's meeting; firearms registration; big-game cartridges; speaking of recoil in 1776; brook trout. Sportsman 21 (4): 108. Apr. 1937.
- Ward, J. C.; Spencer, D. A.; and Garlough, F. E. Strychnine, VIII: The relationship of borax and certain other chemicals to toxicity. Jour. Amer. Pharm. Assoc. 26: 129-134. Feb. 1937.
- Zahniser, Howard. In May--Rowland E. Robinson. Nature Mag. 29: 263, 317. May 1937.

Press and Radio Information and Addresses, copies of which (chiefly in mimeograph) may be obtained from the Division of Public Relations, have been issued as follows:

- U. S. Biological Survey to restore Minnesota Lake as waterfowl refuge. Press statement 1475-37. Released Apr. 22.
- Fewer rats in large cities says new U. S. publication. Press statement 1526-37. Released May 3.
- Tells Mammal Society of U. S. areas for big game. Press statement 1531-37. Released May 6.
- Beaver in right place is conservationist. Press statement 1532-37. Released May 6.
- Rabbits grow faster when fed whole grain and protein pellets. Press statement 1561-37. Released May 13.
- W. P. A. workers improve waterfowl refuge in delta of Mississippi. Press statement 1560-37. Released May 13.
- Wildlife specialist clocks speed of fox. Clip Sheet No. 982. Released Apr. 25.
- Antelope common again in many western areas. Clip Sheet No. 984. Released May 9.
- Wildlife gets "edge" in soil conservation. Clip Sheet No. 985. Released May 16.
- Erosion control aids wildlife. Clip Sheet No. 986. Released May 23.
- Big game increases. (Forest Service Release) Farm Flashes. Apr. 26.
- Fires on woodlands. Farm Flashes. Apr. 27.
- Game encouragement. Farm Flashes. May 3.
- Present status of the duck program. Address by Dr. Ira N. Gabrielson, Chief, before the Southern Game Conference, Columbia, S. C., Apr. 16.
- Early history of Federal bird refuges. Radio talk by Howard Zahniser, in charge, Current and Visual Information. Conservation Day Program. National Farm and Home Hour, Apr. 23.
- The correlation of water conservation and wildlife conservation. Address by Dr. Ira N. Gabrielson, Chief, before the National Rivers and Harbors Congress, Washington, D. C., Apr. 26.

The future of our waterfowl. Address by Col. H. P. Sheldon, Chief, Division of Public Relations, before the Fifteenth Annual Convention of the Izaak Walton League of America, Chicago, Ill. Apr. 30.

Later history of our Federal bird refuges. Radio talk by Howard Zahniser, in charge, Current and Visual Information. Conservation Day Program. National Farm and Home Hour, May 14.

WILDLIFE RESEARCH

Wildlife Surveys

Visit Mammal Laboratories.--Members of the American Society of Mammalogists during their annual meeting here early in May availed themselves of the opportunity to use the mammal laboratories of the Bureau. Those who spent considerable time studying specimens in the mammal collection were: Dr. R. M. Anderson, National Museum of Canada, Ottawa; Dr. W. H. Burt, Museum of Zoology, University of Michigan, Ann Arbor; Dr. Ian McTaggart Cowan, Provincial Museum, Victoria, B. C.; J. K. Doult, Carnegie Museum, Pittsburgh, Pa.; Geo. H. Lowery, Jr., Louisiana State University, Baton Rouge, La.; Norman Preble, Wakefield, Mass.; Cliff Presnall, National Park Service, Zion National Park, Utah.

Others who came to the laboratory for information or to consult with members of the staff were: Dr. C. C. Adams, Director, State Museum, Albany, N. Y.; C. N. Elliott, Atlanta, Ga.; Dr. Francis Harper, Museum of Comparative Zoology, Cambridge, Mass.; Arnold Nicholson, University of Michigan, Ann Arbor.

Provide Deer Cover.--Accompanied by Robley Hunt, Forest Service game technician, Shaler E. Aldous, who is engaged in research on forest wildlife relationships at the Lake States Forest Experiment Station, at St. Paul, Minn., made a survey in April on parts of the Superior National Forest for areas suited to the establishment of winter deer cover. Seven plots were laid out between deer yards. With the aid of 12 C. C. C. boys and a foreman, three clumps containing a total of 300 trees large enough to furnish immediate cover were planted. The trees were selected from stands where thinning was necessary.

Farmers Support Quail Project.--Dr. Walter P. Taylor, leader of the Texas Research Unit, reports that the game preserve demonstration area project of the Extension Service has been enthusiastically received by Dallas County farmers. More than 100,000 acres of land have been signed up in demonstration areas by County Agent Jolley, under the direction of Extension Specialist R. E. Callender. Dr. Taylor spent March 22 to 25 on a trip with Homer G. Towns, of the Soil Conservation Service, inspecting soil conservation activities in Erath and Denton Counties.

V. W. Lehman, field biologist at the Texas Unit, recently made a survey of possibilities for quail food and cover improvements in Dallas County on which the plans for the demonstration area were based.

Study Moose Sickness.---C. M. Aldous, leader of the Maine Research Unit, states that four cases of sick moose have been reported to his office and investigated. An adult cow moose recovered and so far as is known is still at large. This cow became so tame while convalescing that a nearby farmer almost domesticated her. She permitted him to place his small children on her back while he led her around the yard. Soon after she regained her strength she took to the timbered country again. Two other sick moose were calves, and they died from pneumonia within two or three days after being brought in for observation. The other was a mature bull that was so weak that it could hardly rise from the ground. The animal was killed, but no cause for its condition could be found.

Addresses Alumni Club.---Dr. H. C. Oberholser gave an illustrated talk on wildlife restoration on May 9 before the DePauw University Alumni Club of Washington. He stressed the need of restoring favorable habitats for waterfowl and other wildlife and explained the Survey's program for wildlife restoration.

Food Habits Research

Inspect Mosquito-control Work.---Mosquito-control activities in Delaware were inspected on April 22 and 23 by Chief Gabrielson, A. C. Elmer, Amos B. Emery, Dr. Clarence Cottam, and Dr. W. S. Bourn, of the Survey; Director Robert Fechner and District Inspector R. W. Petersen, of the Emergency Conservation Work; Fred Morrell, E. M. Evans, and G. T. Backus, of the Forest Service; and Dr. F. C. Bishopp and G. H. Bradley, of the Bureau of Entomology and Plant Quarantine. The inspection party was accompanied by members of Board of Game and Fish Commissioners of Delaware.

Bird Census at Port Tobacco, Md.---Chief Gabrielson, Dr. Cottam, A. L. Nelson, and F. M. Uhler made the annual spring bird census at Port Tobacco, Md., on May 8. Despite a heavy rain during the forenoon, 117 species were observed. This is a greater number than has been previously observed in any of the past 12 winter censuses or the 8 spring censuses.

Collects Birds at Washington Monument.---During spring and fall bird migrations of the past 5 years, Miss Phoebe Knappen, of this Section, has been a frequent visitor at the Washington Monument in Washington, D. C., where she picks up birds that strike the shaft and fall there. During inclement weather and attracted by the light reflected on the monument, the birds are forced or fly down and are caught in air currents. Many birds not strong enough to resist are blown against the structure. The dead birds that Miss Knappen collects are weighed and measured and the information is added to the Section's records on bird weights. The skins or skeletons are turned over to various collections in the city. Other birds found in a stunned condition at the Monument are kept until they are well enough to be banded and set free, or caged by Franklin H. May at the laboratory for use in experiments on the effects of arsenical and other poison sprays upon birdlife.

Many of the stunned birds die within two or three days after caging, and it is probable that more die from the effects of striking the Monument than is ordinarily supposed. There are indications, too, that birds found dead during the migration seasons from no apparent causes may have been injured by striking some other obstructions along their migration routes.

Miss Knappen reports that casualties at the Washington Monument were rather high this spring and that within 9 days a total of 39 dead birds of 11 species and 31 live birds were collected on the grounds.

Heavy Rains Check Bird Depredations.---Johnson A. Neff, stationed at Sacramento, Calif., reports inspecting a large area in southern California in April where he found the depredations of birds to agriculture appreciably reduced by unusually heavy precipitation. In this area some birds occasionally become so destructive that control measures are necessary. Mr. Neff also reports that the importance of birdbanding in the application of bird-control methods was shown in the case of the Gambel's sparrows banded last year at LeGrand, Calif. Of the 38 banded, 13 (34 percent) returned this year to the same area where they had been banded. A number of demonstrations in bird control were given during April before agricultural commissioners of several counties in southern California.

Evaporation Station Proposal Approved.---At the suggestion of C. S. Williams, stationed at the Bear River Migratory Bird Refuge, Utah, the Weather Bureau was requested and has agreed to establish an evaporation station at the refuge in the near future. Climatic data thus to be provided will be used in developing and applying methods for controlling factors that affect the environment of nesting waterfowl.

Transplant Eelgrass.---Four crates of Pacific coast eelgrass, collected at Monterey, Calif., on April 19, by Johnson A. Neff, arrived in Washington April 25 for experimental transplanting in the East. The following day, Dr. Cottam left with a supply to be planted along the New England coast; Franklin H. May took some of the eelgrass the same day and set it out along the coast in the Middle and South Atlantic States; and on April 28 A. C. Martin took a supply to Delaware. In that State the plantings were made in cooperation with officials of the Resettlement Administration. On his trip to New England, Dr. Cottam investigated mosquito control operations in Rhode Island.

Studies Newly Discovered Goose Food.---At the Delta Migratory Waterfowl Refuge in Louisiana, John J. Lynch has found that blue and snow geese have fed extensively on Panicum repens, a colony-forming grass occurring on recently formed parts of the Mississippi River delta. Careful counts of stem and rootstock fragments remaining on the feeding ground were made on small quadrats. Many plants were growing from the nodes, and indications are that the species is in a good position to reestablish itself. The ecology of other waterfowl foods, including both animal and plant species, is also being studied, and special attention has already been paid to the

growth habits of the alligatorweed (Alternanthera philoxeroides), a species that has crowded out valuable duck-food plants in some places. The possibility that it may be of value to wildlife and not obnoxious is being carefully investigated. At the same time methods of control are being tested, including methods the U. S. Army Engineers use in keeping navigation channels free of this plant and of the water-hyacinth.

Investigate Waterfowl Nesting Conditions.--As a basis for extended experimental work on the propagation of waterfowl, C. S. Williams, assisted by W. H. Marshall, of the Section of Wildlife Surveys, is making a study at the Bear River Migratory Bird Refuge, Utah, of the present nesting population and of such environmental factors as water levels, nesting cover, and predators. From these studies Mr. Williams will attempt to develop methods for completely controlled nesting of some ducks next year and for modifying the environment of others nesting in the wild.

The study of the ecology of waterfowl food plants is under way in the refuge laboratory and it has been observed that sago pondweed grows well in a thick layer of topsoil overlying subsoil heavily impregnated with chlorides, and poorly in a thin layer of topsoil over an equal quantity of subsoil. The quantity and quality of water used were the same in both plots.

Studies Duck Nests.--E. R. Kalmbach, of the Denver Food Habits Laboratory, has gone to the Lower Souris Migratory Waterfowl Refuge, N. Dak., to study duck nests during the breeding season. Early last summer he studied the causes of losses to nesting waterfowl there and found that skunks caused heavier losses than crows. From the field and laboratory studies, Mr. Kalmbach hopes to develop control methods for reducing losses on waterfowl breeding grounds.

Studies Eagles in Texas.--Late in March and early in April, Charles C. Sperry, of the Denver Laboratory, was in western Texas investigating complaints of eagles killing young lambs. Eagles were scarce there this spring, and young lamb losses due to the birds' feeding activities were found to be slight. Heavy losses in previous years, however, were reported by some ranchers, and this accounts largely for the sheep owners' objections to eagles. The birds are readily attracted to fresh carrion, and a high percentage of those trapped on sheep ranges late in winter are destroyed.

Laboratory Quarters Changed.--The Denver Food Habits Laboratory has been moved into room 562 in the Custom House. It was formerly in room 527 of the same building.

Completes Project.--John C. Jones, who has been working as a collaborator in the Section for the past six months, examining the stomach contents of North American coots and writing up the results of his laboratory findings, has recently completed this project. On May 1, Mr. Jones was appointed by the New York Department of Conservation to make a study of the food habits of the great horned owl and foxes, particularly their relation to grouse abundance.

Gives Radio Talk.--On April 7, E. R. Kalmbach, in charge of the Denver laboratory, made a brief talk over station KOA on the work of the laboratory. He also recently appeared before the Colorado Senate Committee on State Affairs and Land Use at a hearing on a proposed enabling act for Federal purchase of land for refuge purposes.

Appointments.--Robert C. McClanahan, who was appointed an assistant biological aide in this Section on April 1, was appointed on May 1 to fill a junior biologist position. Mr. McClanahan holds a B. S. degree from the University of Florida, did post-graduate work in entomology at the University of Michigan, and taught biology in the Pensacola, Fla., high school three years. Lawrence W. Saylor, of Berkeley, Calif., was appointed May 1 to fill the assistant biological aide vacancy created by Mr. McClanahan's appointment as a junior biologist. Mr. Saylor holds B. S. and M. S. degrees from the University of California, and was formerly employed as a junior forester and assistant game technician in the Department of Interior.

Examines Stomach Contents.--Ralph H. Imler, who took up his duties in the Denver Food Habits Laboratory on February 16, is now engaged in the examination of stomachs of crows collected on Federal refuges. Later on he will analyze stomach contents of big-game mammals for the Forest Service.

Changes Name.--Miss Floyd Clarke Foster resigned from the Section of Food Habits on April 15, and on April 29 at Greenville, S. C., was married to Daniel H. Janzen, regional director with headquarters at East Lansing, Mich.

Distribution and Migration of Birds

Seek Reestablishment of Reddish Egret in Florida.--In cooperation with the Biological Survey, the National Association of Audubon Societies is conducting an experiment that should result in the reestablishment of the reddish egret in Florida. Eggs are being taken from nests at the Association's sanctuary on Green Island in lower Laguna Madre, Tex., and transported by airplane to Florida. There they are being placed in several egret and heron rookeries in the northeastern part of the State. The young birds will be banded with Survey bands, and also with colored celluloid bands to make visual identifications possible. The Audubon Association has submitted a rather elaborate outline of plans for this experiment in which it hopes to obtain information on the return of the young to their birthplace, degree of homing instinct, persistence of family groups, relationship of marked adults to the grouping of banded young, dates the marked adults and young leave the rookeries, and causes of mortality. Robert P. Allen, sanctuary director of the Audubon Association, recently informed the Survey that 6 dozen eggs already have been transported by airplane from the Texas sanctuary to Florida and have been placed in nests of closely related species of herons, including the snowy egret, Louisiana heron, and little blue heron.

Cooperative Herring Gull Study.--Cooperating with the Linnaean Society of New York and birdbanding cooperators of the Biological Survey, Dr. Alfred O. Gross, of Bowdoin College, has made plans for extensive banding work with colonies of herring gulls of Eastern Canada, the New England States, and the Great Lakes States. Colored celluloid bands and official aluminum bands will be used and it is estimated that about 20,000 birds will be banded. The investigations will be carried on over a period of several years, the colored bands to be used in such combinations that the place of banding, the year, and the age of the bird may be ascertained by visual observations. It is planned to give this project considerable publicity in order to obtain "sight" returns. Notices will be run in ornithological journals, cooperation of active field students along the Atlantic and Gulf coast will be enlisted, further cooperation being expected from the press and radio stations in asking fishermen, tugboat captains, masters of ships, and the public to report the presence of herring gulls with colored bands on their legs. The objective is the accumulation of additional data on the dispersal of birds from certain colonies or regions. Birds of this species have increased under protection to the point where locally they do considerable damage.

Red Phalaropes Banded.--On April 28, at Westhampton Beach, Long Island, N. Y., several hundred red phalaropes were driven into the bay after a severe storm. Attracted by jelly fish used as bait, four of these birds were caught in a trap and banded by LeRoy Wilcox, a banding cooperator. He succeeded in capturing two more through the use of a scoop net. Only four of these birds have previously been banded since the work was taken over by the Biological Survey in 1920.

Successful in Banding Shorebirds.--Preston F. Osborn, Lakin, Kans., who operates an unusually productive waterfowl trapping station, recently succeeded in banding 14 Wilson's snipe, 4 Sandhill cranes, 69 lesser yellowlegs, and 4 blue geese, in addition to a large number of pintails and mallards. He also banded 9 red phalaropes, bringing the total of this species banded up to 19.

Sooty and Noddy Terns to be Banded.--Charles R. Mason, president of the Florida Audubon Society, is planning a trip to the Dry Tortugas in Florida for banding young sooty and noddy terns. So far only three sooty terns have been banded for the Survey, and no noddy terns.

Returns from Banded Birds.--A tree sparrow banded at Ithaca, N. Y., on January 27, 1931, was retrapped at the same station on January 1, 1932, November 27, 1932, November 18, 1933, December 3, 1934, December 13, 1935, and March 10, 1937; a purple finch banded at Sault Ste. Marie, Mich., on July 23, 1932, was retrapped at the same station on May 8, 1933, May 6, 1934, March 30, 1935, May 11, 1936, and April 29, 1937; a pintail banded at Ogden, Utah, September 28, 1936, was trapped and released January 18, 1937, at

Balboa Park, San Diego, Calif.; an evening grosbeak banded March 19, 1935, at Winnipeg, Manitoba, was trapped and released March 18, 1937, at Sault Ste. Marie, Mich.; a bluebird banded at Ottawa, Ontario, June 24, 1936, was found dead March 3, 1937, at Lake City, Fla.; a cedar waxwing banded April 14, 1935, at Modesto, Calif., was killed about March 29, 1937, at Meridianville, Ala.; a chickadee banded April 28, 1930, at Madison, Wis., was found dead a quarter of a mile from where it had been banded, on April 1, 1937; a white-crowned sparrow banded October 1, 1932, at Bar Harbor, Maine, was found dead at Gatesville, Tex., on January 12, 1937; a red-tailed hawk banded June 20, 1926, at Muscow, Saskatchewan, was killed January 23, 1937, at Burton, Tex.; a redhead banded April 18, 1926, at Ithaca, N. Y., was trapped and released April 29, 1935, in Marshall County, Minn., and shot in October 1936, on Lake Manitoba, Manitoba.

Changes Name.--On April 7, Miss Kathleen M. Marnell, of this Section, and Woodrow W. Nader, of the Section of Accounts, Division of Administration, were married at the Church of the Nativity in Washington,

Fur Resources

Assist in Grading Karakul Skins.--Frank G. Ashbrook and Chas. E. Kellogg spent May 6 assisting officials of the Division of Animal Husbandry, Bureau of Animal Industry, in grading Karakul skins taken from the experimental Karakul flock at the National Agricultural Research center, Beltsville, Md., since 1929. These skins were classified according to a set of standards of actual grades of dressed skins. While there Mr. Ashbrook and Mr. Kellogg also helped classify approximately 140 skins produced by a Texas Karakul breeder, and compared them with those produced in the experiments.

Hold Field Day at Rabbit Station.--Four hundred and fifty persons representing 5 counties and 67 cities and towns attended the field day program at the U. S. Rabbit Experiment Station, Fontana, Calif., April 18. The visitors, who began arriving at 9:30 a.m. and filled the rabbitry throughout the day, appeared greatly interested in the experimental program and expressed their appreciation of the station's service. Director George S. Templeton explained to a large gathering the feeding and breeding of rabbits. Because of the size of the audience it was necessary for him to speak on the front lawn of the station and to use a loud speaker system.

Self-feeders Effective.--The self-feeder for rabbits developed by Director Templeton is proving effective in measuring the capacity of does to nurse and develop large litters. The system being followed at the experiment station is to make observations on the litter at weaning time. If the averaged weaned weight of a litter of seven at 56 days of age is in excess of 4 pounds the doe is given 8 young with her next litter. On the other hand, if the litter does not come up to the 4-pound average the young retained for the succeeding litter is reduced to 6. The growth curve for the litters indicates that the self-feeder system results in increased weight of the young before they come out of the next box and begin to eat of their own accord. One doe, on this system of management,

weaned 8 young on April 26 with a total weight of 33-7/10 pounds at 56 days of age. A previous litter of 8, weaned on January 28, weighed 32-5/10 pounds.

Inspects Equipment.--On April 22 Director Templeton visited rabbitries in Arcadia, Baldwin Park, and Los Angeles, Calif., to study the equipment in use. The rapid advance in price of materials makes the cost of hutch equipment an important item for persons planning to establish new rabbitries. There appears to be an increased interest in rabbit raising as a result of the development of a potent serum from rabbits for the inoculation of humans against pneumonia.

Addresses Farm Bureau.--Director Templeton talked on the experimental work in feeding and breeding of rabbits at a recent luncheon of the board of directors of the San Bernardino County Farm Bureau. This county is in a commercial rabbit raising section, and many members of the Farm Bureau raise rabbits.

Contract Let For New Office Building.--The construction of a new stone office building for the U. S. Fur Animal Experiment Station at Saratoga Springs, N. Y., is to be started soon. Contracts were let on May 4, and the building should be completed by early fall. This is the first step in the program for developing facilities at the station for both extensive and intensive experimental work on foxes, minks, and martens.

Shedding in Minks Starts Around Eyes.--C. F. Bassett, director of the U. S. Fur Animal Experiment Station, reports that the shedding of the old fur of adult minks at the station starts early in April. The appearance of a dark band around each eye is the first sign of shedding and as the old fur around the eye is lost the band increases in width, gradually extending down over the nose and back over the forehead. On May 1 a large majority of the female minks appeared to have bands approximately one-fourth of an inch in width around each eye.

Addresses Fur Breeders.--On April 24, Director Bassett talked at Canandaigua, N. Y., before the Fur Breeders Association of the State of New York on the results obtained by experimental feeding of ground, whole, frozen cod fish to minks in summer and fall. He also answered many questions on fur farming and participated in discussions of problems that have arisen on ranches. Those attending appeared appreciative of the work the experiment station is doing for fur breeders.

Fox Farming Films Shown.--Four reels of motion pictures on the ranching of foxes from the time the pens are first laid out until the pelts appear as finished furs were loaned by Director Bassett to several civic organizations for use in connection with various programs in the vicinity of the station. These films were shown before various Rotary Clubs, young peoples' clubs, and at high schools.

Litter of Martens Born.--A litter of martens was whelped on April 14 at the Fur Animal Experiment Station, but the number of young has not yet been determined because it is not advisable to disturb them. Indications are, however, that the litter does not contain more than two martens.

Delegation from Manchukuo Visits Bureau.--On May 18 Morinao Tsuji and Kunihiro Osuka, technical experts from the Bureau of Industrial Development, Department of Mongolian Administration, and Isowo Okada, of the Department of Industry, Manchukuo Bureau of Agriculture, visited the Section of Fur Resources to discuss fur-animal production and conservation in the United States. They appeared intensely interested in the production of fur animals in captivity as well as conserving fur animals in their natural habitats, and were furnished Bureau publications on these subjects.

Disease Control

Investigates Pollution with Shot.--From May 3 to 7, Dr. J. E. Shillinger made a trip covering the areas of the Delaware and Chesapeake Bays in examining samples of mud from the wildfowling areas for shot pollution. In this work, 21 specimens were taken, and an interesting collection of shot was made. The findings illustrate the mineral distribution of lead pellets in waters where ducks feed and are hunted.

Pollution Losses Studied.--Dr. Don R. Coburn made a survey from April 15 to 24 of the mine and smelter pollution situation in the Coeur d'Alene River in Idaho, at the request of local conservationists and sportsmen, who reported sick and dead waterfowl in the 30-mile area below the mining district. From Dr. Coburn's studies, made with the cooperation of members of the Division of Game Management, it appears that objectionable waste products are going from the main channel of the river into irrigation ditches for considerable distances. This condition and the overflow of the river leave heavy deposits of harmful lead on the vegetation used by the waterfowl, according to Dr. Coburn's observations. Other studies in this area show little change in the management of the pollution situation during the past ten years. Although several elements are deposited into the water in the daily dumpage of 6,000 tons of waste, lead appears to be the most injurious element as far as waterfowl are concerned.

Addresses Meetings.--On April 16, Dr. Shillinger visited the Department of Biology at the Virginia Polytechnic Institute, Blacksburg, Va. After conferring with members of the teaching and research staffs on the disease factors in wildlife losses, he was called upon to address the local sportsmen's league. Crow was served at the banquet. On May 4, Dr. Shillinger gave an illustrated talk to the senior class of veterinary students and members of the faculty at the University of Pennsylvania on fur-animal and other wildlife diseases.

LAND ACQUISITION

Returns from Field.--R. M. Rutherford, associate land valuation engineer, returned recently from a field trip through the Southeastern States that included visits to the Savannah River Migratory Bird Refuge and the Okefenokee Wildlife Refuge, Ga., and St. Marks Migratory Bird Refuge, Fla.

Detailed to Washington.--Charles S. Cook, associate cadastral engineer in the St. Louis, Mo., office, is in Washington on detail. James W. Barker, assistant cadastral engineer of the same office, has returned to his headquarters after a detail to Washington.

Transfer Surveying Operations.--Marion E. Phillips, assistant cadastral engineer, and his field party have transferred their surveying operations from Back Bay, Va., to the Montezuma Refuge in New York. Fred R. Kessler, assistant land negotiator, has returned from Seneca Falls, N. Y., where he has been negotiating for lands and doing abstract work in connection with the Montezuma Refuge.

Transfers.--Claude A. J. English, formerly of the drafting staff of this Division, has transferred to the Division of Migratory Waterfowl and has reported for duty at the Savannah River Migratory Bird Refuge, in Georgia and South Carolina.

MIGRATORY WATERFOWL

Geese Return to Sand Lake.--Phillip A. DuMont, assistant manager of the Sand Lake Migratory Waterfowl Refuge, S. Dak., reports that on April 6, the first of the north-bound flocks of blue and snow geese arrived at the refuge, 15 days later than first arrivals in 1936. In commenting on the arrival of these geese, Mr. DuMont gives the following history of their migration:

"Considerable interest is attached to the spring and fall flights of these birds. The blue goose winters on the Gulf coast, principally in the coastal marshes of Louisiana, but is found from the delta of the Mississippi River southwestward to Galveston, Tex. The entire population of blue geese winters in this comparatively limited coastal area. The snow goose winters in much the same region, but is found farther southwest as well, reaching the Corpus Christi and Brownsville country. Snow geese also winter on both the Atlantic and Pacific coasts.

"Near the end of February, the flocks begin leaving the Louisiana coast. It is believed that their first hop to northwestern Missouri or the Nishnabotna River bottoms in southwestern Iowa is made as a nonstop flight. At that time of the year the cornfields usually have many pools of water, which are convenient places for feeding. Moving northward in Iowa, the next stop is in the vicinity of Missouri Valley and Mondamin, north of Council Bluffs. I saw 1,500 birds north of Mondamin on March 9 of this year. By March 24, the maximum numbers had arrived for their three weeks' stop in the region of Whiting, Sloan, and Onawa, Iowa.

"The route of migration through South Dakota extends along the James and Red River Valleys and the entire flight northward is generally confined to a narrow strip bounded on the east by the Minnesota-South Dakota State line and extending west only a few miles beyond Aberdeen. Northward over this route pass the entire population of blue geese. These geese remain in the vicinity of the Sand Lake refuge about three weeks, then move northward to resting and feeding places in North Dakota, finally concentrating on Grant Lake, near Winnipeg. It is believed that after leaving Winnipeg, the next flight of about 1,100 miles is nonstop into the Arctic Circle.

"Until 1928, it is reported, a nest of the blue goose had never been seen by white men. However, a young Canadian naturalist, J. Dewey Soper, remained in the Arctic one year near their supposed nesting grounds, lived with the Indians over winter, and during the succeeding June was the first white man reported to have seen such a nest. Southhampton Island in the northern part of Hudson Bay and the west coast of Baffin Island so far are the only known nesting regions of this goose. Both the snow goose and the blue goose nest in this treeless Arctic tundra, building their nests on the ground and laying eggs about the 26th of June, when the snow has melted only sufficiently to leave patches of exposed moss and grass.

"During the southward migration, the flight frequently swings slightly eastward. The opinion is held by leading bird authorities that the bulk of these geese cover the 2,500 miles on the southward trip in a single flight. This is based upon the nearly exhausted condition in which the birds are found upon their arrival in Louisiana and the fact that so few observations of these birds are made enroute."

Pintails Nest Early.--Cordia J. Henry, assistant refuge manager of the Lower Souris Migratory Waterfowl Refuge, N. Dak., reports that the first duck nest of the season, that of a pintail with three eggs, was found on the refuge on April 26. Two more pintail nests were discovered on April 28. Mr. Henry reports that the diving ducks are much more numerous this year on the Lower Souris Refuge than last year, but that the dabblers are relatively scarce. There has also been a decided increase in the number of geese on the refuge as compared with that of last year. White-fronted and Canada geese are the most numerous. Blue and snow geese, too, have appeared in small numbers.

Credit Given Survey Dams.--Almost 221,000 acre-feet of water, approximately 70 percent of the total stored water in western North Dakota, is impounded by a series of 185 dams in the Souris River basin of that State. "This extensive development is due, in large measure," according to the May report of the State Planning Board on "Irrigation in North Dakota," "to the work of the U. S. Biological Survey." These figures, it will be noted, refer only to that part of the State west of the hundredth meridian, and do not take into account the water conservation by the Survey east of that line. This is estimated to be an additional reservoir capacity of some 50,000 acre-feet, materially increasing the percentage. Prior to 1933, a number of dams and other water-conservation works were built by local and private agencies.

The railroads that traverse this State also built a number of dams for water storage for their industrial use, and several communities built dams for municipal and recreational purposes. Major construction, however, did not begin until the summer of that year, when Federal agencies began the present program of dam construction. Agencies that participated in the water conservation program are the C. C. C., C. W. A., F. E. R. A., W. P. A., P. W. A., Soil Conservation Service, and the Biological Survey.

Water Plentiful on Easement Projects.--M. O. Steen, easement project administrator, who is temporarily stationed in Washington, has received word that all the ponds on the easement refuges in southern and eastern North Dakota are full of water. Those in the northern and western parts of the State have fared less fortunately, however.

Cormorants Inhabit Nesting Islands.--Watson E. Beed, junior refuge manager of the Waubay Migratory Waterfowl Refuge, S. Dak., reports that large numbers of cormorants are now using the nesting islands constructed during the winter on the refuge. At one time cormorants were abundant in the vicinity of the refuge, but unfavorable conditions in recent years greatly depleted their numbers, and the few that remained left in search of suitable nesting grounds elsewhere. Their use of the new islands on the refuge indicates that they very likely will resume nesting there.

Easement Projects Undertaken in Montana.--Easements have recently been obtained and construction work begun on four new refuge projects in Montana. The projects are at Mason Lake, in Musselshell County, near Roundup; Thibedean Lake, in Hill County, near Havre; Black Coulee, in Blaine County, near Turner; and Hewitt Lake, in Phillips County, near Malta. Every effort is being made to complete the necessary construction work on these projects before the expiration of the present W. P. A. funds on June 30.

On Expedition to Aleutian Islands.--John H. Steenis, of the Division of Migratory Waterfowl, is accompanying O. J. Murie and Victor B. Scheffer, of the Division of Wildlife Research, on their summer's expedition to the Aleutian Islands, Alaska. The party left Seattle on May 4 aboard the Bureau's patrol boat Brown Bear.

Personnel Changes.--Peter J. Van Huizen, in charge of the Blackwater Migratory Bird Refuge, Md., for several years, was transferred on April 15 to the new Sacramento Migratory Waterfowl Refuge, Calif. His official station will be at Willows. Francis L. Jones, formerly laborer-patrolman on the Killcohook Migratory Bird Refuge, in New Jersey and Delaware, is temporarily succeeding Mr. Van Huizen on the Blackwater Refuge.

H. D. Willis, of the Bureau of Agricultural Engineering, was assigned to the Malheur Migratory Bird Refuge, Oreg., as project engineer to fill the vacancy created by the recent death of Arthur Page. Mr. Willis was formerly stationed at Minot, N. Dak.

Paul T. Kreager, formerly of the Division of Land Acquisition, with headquarters at San Antonio, Tex., was transferred to this Division on April 8, to succeed Wm. T. Krummes as assistant refuge manager of the Medicine Lake Migratory Waterfowl Refuge, Mont. Mr. Krummes will be transferred shortly to Regional Director Gilchrist's office at Albuquerque, N. Mex.

Miss June Montgomery, assistant clerk-stenographer, transferred to the Salt Lake City office of the Bureau of Agricultural Engineering on May 6. Her position in the Washington office has been filled by Mrs. Irene P. Kricun, formerly with the legal division of the Resettlement Administration.

Miss Martha M. Garrison was appointed a junior clerk-stenographer in the Section of Restoration and Development on May 3.

GAME MANAGEMENT

Game Management Agents and Game Preserves

Second Albino Buffalo Born.--On May 8 a pure white male buffalo calf was born at the National Bison Range, Mont. The mother of the calf is also the mother of the albino bull which was born there on May 17, 1933, and which sired the young white calf. During the past two years, Dr. Robert S. Norton, in charge of the Bison Range, has been conducting a breeding experiment with the white bull, its mother, and 9 selected cows that were branded, as were also their offspring. These buffalo were kept apart from the main herd for a time in 1935 and 1936. The young calf was found a day after its birth, in a ditch, where it had fallen and badly injured its right eye and the right side of the head. A few days later the young animal was disowned by its mother, probably because its defective sight made it difficult to follow her. The calf was then taken to the headquarters and is being raised on cow's milk. It is doing well and with exception of defective eyes appears to be healthy and normal. The animal's eyes are pink and even its hoofs are white. It is feared, however, that it may be entirely blind, but this cannot be definitely determined until the injured eye is in better condition. The other eye appears improperly formed.

Enforce Waterfowl Regulations.--During March and part of April, Game Management Agents George M. Riddick, of Idaho, and Frank Poley and Deputy Agent Leo R. Childers, of Colorado, were detailed to waterfowl areas in Nebraska, where they cooperated with Agent Clyde Licking and with Nebraska wardens in a campaign against violations during the spring migration. Regional Director Leo L. Laythe also took part in the campaign several days. The men made many arrests, thus reducing the number of violations.

Bureau Motion Pictures Popular.--Regional Director Laythe reports that during the past six weeks his office in Denver has handled numerous requests for motion pictures of the Bureau. Three pictures that were very widely shown were: "Beavers at Home," "The Cougar Hunt," and "Porcupine Control in the Western States." "Our Wildlife Resources" is also a popular picture in Colorado. More than 1,000 persons viewed these films, including 650 boy scouts and their parents; 150 service club members; 30 opportunity school pupils;

and more than 200 persons at public-relations meetings conducted by Forest Service representatives. Favorable comments on this pictures were heard at all these meetings.

Waterfowl Fed During Emergency.--A check of winter wildlife feeding activities shows that 50 tons of feed were purchased under special allotments from the Bureau and distributed in Region 2, the Mountain Plains Region, to take care of emergency conditions resulting from unusually heavy snows during the past winter. Additional grain for feeding waterfowl was also provided through the cooperation of State game departments, county sportsmen's associations, and others. Survey employees who distributed this grain in the areas where feeding was necessary picked up dead ducks and sent them to the Food Habits Laboratory at Denver, where it was determined that they did not perish primarily from starvation but were victims of parasites, fungous diseases, or mechanical injuries, including gunshot wounds. The feeding activities undoubtedly were effective in saving large numbers of normal birds from starvation.

Medal Presented to Soldier.--The War Department Soldier's Medal, according to reports received, was presented to Private Ersel W. Baker, Second Ammunition Train, at Fort Sill, Okla., on April 17, by Col. A. McIntyre, Post Commandant. About 240 troops stood in line on the parade grounds as Baker was cited for heroism for risking his life on March 7 for a companion who was drowned in Quanah Parker Lake in the Wichita Mountains Wildlife Refuge on June 23, 1936.

Release Ducks from Fish Nets.--Early in April, Gill Gigstead, junior refuge manager of the Chautauque Migratory Waterfowl Refuge, Ill., banded and liberated about 350 ducks, mostly lesser scaups, that had been caught in fish nets in the vicinity. Local fishermen also informed him that they had released 272 ducks from their nets. On a few trips on the Illinois and Spoon Rivers Mr. Gigstead was accompanied by Deputy Game Management Agents Edward T. Carter and Harry T. Maltby. They found 7 nets containing 29 ducks and were able to band about half these before releasing them. Mr. Carter reports that he found canvasbacks, lesser scaups, and redheads in large numbers while patrolling the Illinois River from Meredosia to Peru.

Ducks Stay Over in Florida.--U. S. Game Management Agent J. V. Kelsey, of Daytona Beach, Fla., says in report covering the period from May 9 to 15: "More ducks remaining in Florida than in any previous year, mostly blue-winged teals and black ducks. The former frequently nest here while the others also have been known to do so."

More Geese in North Dakota.--Game Management Agent George M. Riddick reports that on May 4 he conferred with farmers in the vicinity of Fargo, N. Dak., who informed him that more geese had frequented this section this spring than in any of the past 25 years.

Law Enforcement

Addresses Sportsmen.--F. P. Callaghan, in charge of the Section of Law Enforcement, while in Mobile, Ala., on April 22, spoke on game-law enforcement and the work of the Survey before the Mobile County Sportsmen's Association. During the week of May 17, Mr. Callaghan spent several days in New York City with Agents Farnham and Stadlmeir in calling on the fur trade.

Conspired to Violate Lacey Act.--The first conspiracy cases under the Lacey Act in connection with the unlawful transportation of furs were terminated in Federal court at Marquette, Mich., on April 15, when a jury returned verdicts of guilty against three offenders. Three other defendants had pleaded guilty previously. Three were from Wisconsin and the other three from Michigan. Two were sentenced to 18 and 13 months, respectively, in the Federal Reformatory at Chillicothe, Ohio, and the others to the Federal Prison Farm at Milan, Mich., one for 13 months, two for 8 months each, and one for 6 months.

Received Heavy Fine.--A fine of \$75 was imposed on a defendant in Federal court at Opelousas, La., on May 6 upon a plea of guilty of killing wild ducks in close season. The hunter had also threatened the arresting officer with a shotgun. In fining the hunter, the court said it was convinced that this threat was made as a bluff rather than with felonious intent, otherwise the defendant would have received heavy jail sentence.

On May 5 in the Federal court at New Orleans, La., two hunters charged with killing coots in close season pleaded guilty and were each sentenced to 30 days in jail.

Cases involving the hunting and killing of wild ducks during close season by three hunters also were terminated in Federal court at Memphis, Tenn., on April 30, by pleas of guilty, one with a fine of \$50 and the others with \$75 each.

Dove Hunters Fined.--Three hunters of mourning doves, using guns improperly plugged to reduce their capacity to not more than three shells at one loading, entered pleas of guilty in Federal court at Paducah, Ky., on April 19, and were fined \$36 each.

Finds Illegal Bass Shipment.--An agent of the Survey during February discovered a shipment from Maryland of black bass in Nebraska. The facts were reported to the U. S. Bureau of Fisheries. Following an investigation a Maryland fish dealer, who made the shipment, was arraigned in State court, found guilty, and fined \$25 and costs.

Sold Ducks.--Charged with possession of wild ducks in close season and with selling the birds a defendant arraigned in Federal court at Little Rock, Ark., on April 26 pleaded guilty and was sentenced to 30 days in jail.

A one-day jail sentence was meted out by the Federal court at Jonesboro, Ark., to a defendant who pleaded guilty to killing a wild duck in close season. He had served 3 days in jail before he was brought to trial.

Transported Ducks.--A defendant arraigned in Federal court at Los Angeles, Calif., on April 12, on a charge of transporting ducks from Mexico into California in the close season, pleaded guilty, and was fined \$1 and costs of \$15.

Check Fur Shipments.--Agents have recently been making an annual check-up at fur centers for information and data in connection with possible illegal interstate and international shipments of furs of wild animals. As a result of these inspections large numbers of invoices for further investigation by Federal agents or by State game departments are beginning to arrive.

Importations

Smuggling Frustrated.--Four gold finches, one of which had died from suffocation, were seized on May 14 by customs guard at New York City from a member of the crew of a large ocean passenger vessel. The would-be smuggler had tied the birds around his ankles inside his socks. Before the legal division of the Customs Service he was fined \$56 and warned that on the next offense he would receive a heavier penalty.

Predator and Rodent Control

Predator Control Discussed before Secretary.--Late this spring the Office of the Secretary inaugurated a program that gives the Bureaus in the Department an opportunity to discuss their projects before the Secretary and his staff. These discussions are being held in the Secretary's conference room in May and June and will be resumed in the fall. The project to be discussed is drawn by the Chief of the Bureau from a hat containing slips of papers on which the projects have been written.

When the Survey's turn came recently the project chosen for discussion was that of predators. Mr. Young was selected to explain this project, and on May 7, in company with D. D. Green, of the Section of Predator and Rodent Control, he did so in a 2 1-2 hour discussion. In explaining predator investigations and control, Mr. Young used lantern slides, specimens of skins, including some of the notorious wolves taken by the Bureau, samples of traps, and maps showing the distribution of coyotes and the distribution of the Survey's hunters and field men. Comments made following Mr. Young's talk indicated that the Secretary and his staff are thus obtaining valuable information on the activities of the Bureaus.

Inspects Hawaiian Rat Abatement Project.--D. D. Green returned on May 1 to Washington from Hawaii, where he reports that favorable progress has been made in developing methods for controlling rats in the pineapple and coffee growing sections of the Territory. In the sugarcane areas, however, investigational work is still needed in order to map out a satisfactory control program. The Territorial Legislature recently provided a \$15,000 revolving fund for furnishing materials to cooperators on a cost basis through the Territorial Board of Health. Several thousand dollars from the original rat abatement fund will also be available for research during the coming fiscal year. New machinery recently installed by the Bureau enables the laboratory at Honolulu

to produce sausage-type baits more efficiently, and the new stuffing machine makes it possible to manufacture more uniform sausage baits. The bait material from this compressor-type stuffer flows more evenly than it did from the equipment formerly used. On his return to Washington Mr. Green conferred with Bureau personnel at Berkeley, Sunol, and Sacramento, Calif., Reno and Elko, Nev.; Ogden, Utah; Cheyenne, Wyo.; and Denver, Colo., on control projects in these States.

Introduce Rodent Bait.--District Agent C. R. Landon, of the Texas district, cooperated with the county agent of Cass County, Texas, in introducing poisoned maize for the control of pocket gophers in the eastern Texas area as the best bait to poison the rodents. Sixteen demonstrations to show the use of probes for finding the runways and the placing of the grain were held. In less than three weeks, 700 pounds of grain had been applied. Since October 1, 1936, a total of 108,514 pounds of poisoned bait have been mixed at Lubbock, Tex. A cotton rat-control project has been undertaken on Matagorda Island, a favorite place for quail, as an additional game propagation measure. In addition to damaging quail nests and eggs, the rats monopolize wildlife cover on the island. To cover the island completely it was flagged off in strips, and poisoning operations similar to prairie dog poisoning in the West were conducted. As many as 21 dead rats were found in a single pear bush after the operations.

Woman Trapper Successful.--During the 128 days that Mrs. Bessie Kennedy has been employed as a trapper, she has taken 37 bobcats, 74 coyotes, and 2 mountain lions. She is the only Federal woman trapper at present and has been working on the Indio Ranch in Texas, which has been trapped continuously for many years.

Range Land Improved.--District Agent E. M. Mercer, stationed at Phoenix, Ariz., reports an example of rehabilitating Arizona range lands through rodent control. Cochise County, an area heavily infested by banner-tailed and Merriam kangaroo rats, yielded only a few live burrows in thousands of acres after control operations were completed. Heavy rains started the grass growing and a heavy growth of perennials now covers the old burrows.

Purchase Authorized.--An expenditure of funds has been authorized for the purchase of the site and building now occupied by the Bureau's supply depot and bait mixing station at Pocatello, Idaho. As soon as title has been cleared and the purchase consummated, an addition will be constructed and the supply depot will be gradually expanded to accommodate all lines of the Bureau's field work, particularly in the West.

Pocket Gopher Damage Serious.--With the contemplated discontinuance of C. C. C. and W. P. A. labor for rodent control on signed-up projects under the Soil Conservation Program, District Agent Chas. G. Poole, at Sacramento, Calif., reports that pocket gopher control operations have been somewhat limited. Severe damage to many of the southern projects occurred in the past winter during heavy rains. From 50 to 75 percent of all contour and terrace failures were traced to pocket gopher infestations. On one project alone about \$1,400 will be needed to repair the breaks; several others will have to be abandoned; and on the remainder the engineers do not recommend further development until the rodents are removed.

Sale of Rabbit Skins Heavy.--General marketing of rabbit skins in North Dakota and South Dakota on a much larger scale than anywhere else in the United States is reported. District Agent Louis Knowles reports that at Miller, S. Dak., one buyer had bought a total of 64,000 skins by March 1. In Hanson County, S. Dak., 1,000 rabbits have been taken on and near a half-mile strip plantation containing 10 acres. A business establishment owning a radio station in the Northern Plains Region took up buying rabbit skins and for three months broadcast twice daily price quotations and urged the collection of skins.

Detailed to Idaho.--G. C. Oderkirk who has been serving as district agent in charge of rodent control in Regions IV and VI, has been detailed to Idaho for the summer to assist District Agent T. B. Murray in conducting extensive predator and rodent control projects. He will return to his official station early in the fall.

Continue Predator Control.--District Agent A. S. Hamm, of the Cheyenne, Wyo., office, reports that the Wyoming W. P. A. predator control project was renewed for the calendar year with 30 relief men working under the supervision of the Bureau. Sixteen of the State's twenty-three counties have also budgeted a total of \$20,360 for cooperative work with the Survey during the calendar year, the amount for the sixteen counties ranging from \$250 to \$2,520.

Armadillo Useful on Farm.--Reports from field men in Texas indicate that the armadillo's damage to flower beds and vegetable gardens is negligible, and that its insect-eating habits are of great economic value to farmers. The field men recently received reports of these animals destroying flower and vegetable gardens and were asked to institute control measures. In view of the animal's heavy diet of insects they are urging the farmers not to invoke control measures. One of the Bureau's employees says that since the armadillo has become plentiful in Texas the damage to corn and cane there by the destructive borer has been greatly reduced.

Transfers.--Miss Louise Lauck, clerk at the rodent control supply depot at Pocatello, Idaho, has transferred to the office of R. Scott Zimmerman, district agent at Salt Lake City, Utah, to fill the vacancy created by the transfer of Mrs. Dorothy Kennedy to the Bureau of Entomology and Plant Quarantine.

Demonstrates Trapping Methods.---Effective wolf and coyote trapping methods are being demonstrated to native and resident trappers in Alaska by District Agent H. H. Gubser in order to reduce the losses these predators cause among reindeer, caribou, and other game animals. These demonstrations are being conducted in cooperation with the Reindeer and Indian Services of the Department of Interior, the Territorial Government, and the Alaska Game Commission.

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THE SURVEY

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GENERAL NOTES

Associate Chief Visits Refuges.--Mr. Henderson returnWW recently from a western trip on which he visited a number of the Bureau refuges and attended the Western States Extension Conference held at Spokane, Wash., May 24 to 28. Refuges that he visited included the Malheur Migratory Bird Refuge, Oreg.; Charles Sheldon Antelope Refuge and Range, Nev.; Tule Lake Bird Refuge, Calif.; Upper Klamath Bird Refuge, Oreg.; and Sacramento Migratory Waterfowl Refuge, Calif. While in California he also conferred with District Agent Charles G. Poole at Sacramento, and inspected the U. S. Rabbit Experiment Station at Fontana.

In Utah, Mr. Henderson conferred with L. M. Winsor, Brice McBride, and Newell Cook of the State Game Department at Salt Lake City, after which he visited the proposed refuge project on the Weber River and the Bear River Migratory Bird Refuge near Brigham. At Logan, he conferred with Dr. D. I. Rasmussen, leader of the Utah Wildlife Research Unit, and from there he went to Pocatello, Idaho, where he conferred with Paul T. Quick, of the Bureau's bait-mixing station. Before returning to Washington, he went to Minot, N. Dak., for a conference with Burnie Maurek, acting regional director. He also visited the Upper Souris, Lower Souris, Des Lacs, Medicine Lake, and Lake Bowdoin Migratory Waterfowl Refuges, and at St. Paul, Minn., held conferences with Ray C. Steele, superintendent of the Upper Mississippi River Wildlife and Fish Refuge, and with the director of the State Conservation Department.

Prepares Leaflet on Manuscript Writing.--The value of good writing in scientific publications is pointed out in a mimeographed leaflet prepared by W. L. McAtee, technical adviser, based on experiences under all six Chiefs of the Survey. The leaflet, entitled "Preparing Scientific Manuscripts for the Biological Survey," says, "It is entirely safe to say that the favorable world-wide reputation of the Biological Survey is based upon its scientific publications. If such recognition is to continue we must in some way keep alive the flames of devoted research and scholarly writing."

The development of editing in the Bureau, outstanding in which were the painstaking efforts exercised by its early officials, is related in the leaflet. Suggestions that insure accuracy and at the same time are conducive to clear and forceful copy are contained, and the editorial requirements of various official publications listed. In addition to the copies supplied Bureau employees, 300 copies were requested by the Soil Conservation Service and 260 by the National Park Service for distribution among their employees. The original edition was soon exhausted, and a second edition with slight revisions has been mimeographed.

Steenis "Lost" for Four Days.--John H. Steenis, of the Division of Migratory Waterfowl and a member of the Survey expedition investigating conditions of bird and animal life on the Aleutian Islands, became separated from his co-workers on Agattu Island early in June, and was not found until four days later. At first it was feared that he had fallen into a crevasse or hole while exploring the rugged volcanic areas of the island. Meantime the U. S. Coast Guard and the Alaska Game Commission helped organize a searching party. A message received by the Bureau after Mr. Steenis was found well and uninjured said that he was unable to locate the expedition's boat, the Brown Pear, on June 12, when he sought to rejoin O. J. Murie and Dr. Victor B. Scheffer, both of the Division of Wildlife Research and also members of the expedition. On June 14, he sighted the vessel, but was unable to attract the attention of those on board. Two days later he was found.

The three men left Seattle, Wash., May 4, and are expected to return to the United States about September 30.

Desecheo Island Turned over to Puerto Rico.--Desecheo Island, located in Mona Passage near Puerto Rico, and administered since 1912 by the Bureau as a bird refuge, has been transferred by Presidential proclamation of June 19, to the people of Puerto Rico for their use as a forest reserve and native bird preserve. This leaves one refuge, the Culebra Bird Refuge, that the Bureau administers in Puerto Rican territory. The right of the United States to occupy such areas of Desecheo Island as may be needed for the establishment of aids to navigation, together with rights for landing and ingress and egress to the areas so occupied is reserved for the United States by the proclamation. Should the Puerto Ricans cease to use the island as a forest reserve or bird preserve it is to revert to the United States.

Inspects Game Preserves.--Accompanied by Herbert L. Stoddard and E. V. Komarek, both of Thomasville, Ga., Mr. McAtee inspected game preserves of members of The Cooperative Quail Study Association in Georgia and South Carolina from June 4 to 18. He also visited the Okefenokee Wildlife Refuge, Ga., and the Cape Romain Migratory Bird Refuge, S. C., before returning to Washington.

ADMINISTRATION

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" (Admin. F. O.) series:

- No. 180. Predatory animal and rodent control policy on refuges under the jurisdiction of the Biological Survey. (May 19.)
- No. 181. Gear and bearing lubricants in bulk quantities. (May 20.)
(Superseding Admin. F. O. No. 91)
- No. 182. The President's statement that speculation by employees in stocks or bonds or commodities is contrary to Government policy. (May 26.)
- No. 183. License plates for Department-owned motor vehicles. (May 28.)

- No. 184. Payment for commodities or services the quantity of which is determined by metered readings. (June 1.)
- No. 185. Changes in Procurement Division contracts. (June 4.)
- No. 186. Employment of persons in more than one capacity at the same time in this and/or other Government departments. (June 7.)
- No. 187. Prompt submission of motor-vehicle reports for June. (June 14.)
- No. 188. Toll charges for passage over San Francisco-Oakland Bay Bridge. (June 14.)

PUBLIC RELATIONS

Cites Importance of Research.--Col. Sheldon in addressing a conference of sportsmen, conservationists, and conservation officials at Burlington, Vt., on June 5, stressed the fundamental importance of research as a basis for practical, successful programs of wildlife restoration, and the equal importance of unity of effort among all conservation organizations and agencies to maintain such programs. The conference was sponsored by the General Wildlife Federation. While in Vermont, Col. Sheldon also conferred with Dr. Russell P. Hunter and other members of the State Conservation Department on the work of the Survey.

Speaks at Wildlife Conference.--Substituting for Col. Sheldon and I. T. Bode, Howard Zahniser on July 15, addressed the First Regional Wildlife Conference of the General Wildlife Federation at Nashville, Tenn., on the subjects "The Biological Survey and Game Restoration" and "Game Restoration on the Farm." Mr. Zahniser told of the way in which the Biological Survey is conducting its restoration work and providing aids through research and information work, calling particular attention to recent publications and to Farmers' Bulletins 1719 and 1759. The Conference, held on July 14 to 16, was also attended by Eugene Boring and John C. Knox, game management agents in Montgomery, Ala., and Memphis, Tenn., respectively. Outstanding figure at the conference was J. N. Darling, former Chief, who spoke at the banquet on July 15.

Farm Youths, Boy Scouts See Exhibits.--Hundreds of 4-H club members viewed the Bureau's exhibit, "Winter Feeding of Birds" during their annual meeting in Washington, June 16 to 22. The exhibit along with those of other Bureaus was on display in the hall leading to the auditorium in the South Building, where many of the 4-H club sessions were held. Following the 4-H club encampment the Survey exhibit was moved to the conference room in the South Building for display during the Boy Scout jamboree, from June 30 to July 9. Two other Bureau exhibits, "Our Vanishing Shore Birds" and "Game Birds No Longer Abundant" were added to this display.

On July 9, Arthur Susott directed the setting up of the Bureau's exhibit on fur-bearers at the gymnasium building of the University of Maryland at College Park, which was on display there until July 23 during the regional meeting of C. C. C. educational advisers.

Broadcast.--In a radio dialogue on June 4 with Morse Salisbury, Chief of the Department's Radio Service, Howard Zahniser continued the Farm and Home Hour discussions of Federal bird refuges and told how the Bureau's nationwide waterfowl restoration program has been financed.

In a radio talk on July 9 Mr. Zahniser explained the history and development of the Malheur Migratory Bird Refuge in Oregon.

On June 18 F. C. Lincoln, in charge, Section of Distribution and Migration of birds, Division of Wildlife Research, discussed with Mr. Salisbury the investigations of waterfowl conditions and their importance in planning hunting regulations.

The discussions as mimeographed are listed on page 118 of THE SURVEY.

Official Publications.--Copies of which may be obtained from the Division of Public Relations, have been issued as follows:

Flight speed of birds. By May Thatcher Cooke, Junior Biologist, Section of Distribution and Migration of Birds, Division of Wildlife Research.

Circular No. 428, 14 pp. May 1937. Received June 2.

Post-mortem examinations of wild birds and mammals. By J. E. Shillinger, Senior Veterinarian, In Charge Section of Disease Control, Division of Wildlife Research, and William Rush, Regional Director. Miscellaneous Publication No. 270, 16 pp. May 1937. Received June 16.

Regulations relating to game, land fur animals, and birds in Alaska, 1937-38.

Compiled in the Division of Game Management. Alaska Game Commission

Circular No. 14, 32 pp. May 1937. Received June 17.

The waterfowl situation: 1936-37. Prepared in the Section of Distribution and Migration of Birds, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-88, 14 pp. May 1937. Received May 17.

Infectious myxomatosis of domestic rabbits (Mosquito disease; big-head disease).

By F. D. McKenney, Associate Veterinarian, and J. E. Shillinger, Senior Veterinarian, In Charge Section of Disease Control, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-89, 2 pp. May 1937. Received May 27.

The American chameleon and its care. Prepared in the Section of Food Habits, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-92, 4pp. May 1937. Received May 27.

The controlled hunting areas and the pheasant refuge-management system in northwestern Ohio. By Lawrence E. Hicks, Biologist, Section of Wildlife Surveys, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-93, 10 pp. April 1937. Received June 7.

Birds in Relation to fishes. By Clarence Cottam, Senior Biologist, in charge, and F. M. Uhler, Associate Biologist, Section of Food Habits, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-83, 16 pp. May 1937. Received June 18.

Hemorrhagic septicemia of domestic rabbits. Contagious nasal catarrh (snuffles), subcutaneous abscesses (boils), and other forms. By F. D. McKenney, Associate Veterinarian, and J. E. Shillinger, Senior Veterinarian, In Charge Section of Disease Control, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-90, 5 pp. May 1937. Received June 11.

Research studies in the control of destructive mammals. By F. E. Garlough, Director, Control Methods Research Laboratory, Division of Game Management. Wildlife Research and Management Leaflet BS-91, 12 pp. May 1937. Received June 29.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Cheesman, W. H. The Biological Survey. Americana Annual 1937: 75-78.
 ----- (With P. H. Oehser, U. S. Natl. Mus.) The spelling of common names of birds. Auk 54: 333-340. July 1937.
- Cooke, M. T. Some longevity records of wild birds. Bird Banding 8: 52-65. Apr. 1937.
- Cottam, C. An unusual concentration of blue jays. Bird Banding 8: 79-80. Apr. 1937.
- Speed of the gray fox. Jour. Mammal. 18: 240-241. May 1937.
- Einarsen, A. S. Musical molluscs. Sunset Mag. 78 (4): 52-53. Apr. 1937.
- Halibut. Sunset Mag. 78 (5): 49-50. May 1937.
- Jewett, S. G. A northern record for the grey titmouse in Oregon. Condor 39: 125. May/June 1937.
- Kellogg, C. E. Classification and price trends of silver fox pelts for the year 1937. Amer. Fur Breeder 9 (10): 10, 12. Apr. 1937. Also published in: Fur Jour. 3 (6): 4, Apr. 1937, and 3 (7): 4, 9, 11, May 1937; Black Fox Mag. 20 (12): 13, 25, 27, Apr. 1937; and British Fur Farmer, Apr. 1937, pp. 45-46.
- McKenney, F. D., and Shillinger, J. E. Studies on an epizootic in domestic rabbits due to Pasteurella cuniculicida. Jour. Amer. Vet. Med. Assoc. 43: 755-767. June 1937.
- Mills, E. M. New rat bait formulas with powdered red squill. Soap 13: 129. Feb. 1937.
- Nelson, A. L. Microtus pennsylvanicus in coastal South Carolina. Jour. Mammal. 18: 244. May 1937.
- Rush, W. M. What are wildlife values? Nature Mag. 30: 40-43, illus. July 1937.
- Sheldon, H. P. Guns and game: Wild boar for this country; Winchester's .219 zipper; a century of reliability; eating crow. Sportsman 21 (5): 90. May 1937.
- Guns and game: The wild-fowl situation; prone vs. practical shooting; turkey matches; field-trial gunners under handicaps. Sportsman 21 (6): 124. June 1937.
- Smith, B. E. [Waterfowl situation in the Northeastern States.] Herald Tribune [N. Y.]. June 6, 1937.
- Ward, J. C.; Barber, C. W.; Garlough, F. E.; and Manch, J. C. Red squill V: The susceptibility of hogs to red squill. Jour. Amer. Pharm. Assoc. 26: 137-139. Feb. 1937.
- Zahniser, H. Sanctuary: A grand tour of the major refuges, where the wildlings of the air find sanctuary. Amer. Forests 43: 286-292, 320, illus. June 1937.
- In June--Dan Beard. Nature Mag. 29: 327. June 1937.
- In July--William Brewster. Nature Mag. 30: 7, 60. July 1937.

Press and Radio Information and Addresses, copies of which (chiefly in mimeograph) may be obtained from the Division of Public Relations, have been issued as follows:

- U. S. biologists on way to duck nesting grounds. Press Statement 1584-37. Released May 21.
- Improve U. S. Refuge for ducks in Montana. Press Statement 1594-37. Released May 24.
- Trempealeau Marshes, Wis. scene of W. P. A. work on Federal refuge. Press Statement 1600-37. Released May 25.
- W. P. A. to divert S. Dak. River for U. S. waterfowl refuge. Press Statement 1611-37. Released May 27.
- Big-game refuges get benefits of W. P. A. work. Press Statement 1661-37. Released June 10.
- U. S. improves duck refuges in Nebraska. Press Statement 1672-37. Released June 12.
- Flight speed of birds. Press Statement 1712-37. Released June 22.
- Bombay Hook, Del., added to U. S. waterfowl refuges. Press Statement 1730-37. Released June 25.
- Duck stamps showing 5 scaups to be on sale at post offices. Press Statement 1734-37. Released July 1.
- Flushing bar warns birds, nests also may be saved. Clip Sheet No. 989. Released June 13.
- Second "white buffalo" born on U. S. Bison Range. Clip Sheet No. 994. Released July 18.
- Birds of the air have nests. Radio talk by Howard Zahniser, in charge, Section of Current and Visual Information. Conservation Day Program. National Farm and Home Hour, June 4.
- Making wild-fowl hunting regulations intelligently. Radio talk by Frederick C. Lincoln, in charge, Section of Distribution and Migration of Birds. Conservation Day Program. National Farm and Home Hour, June 18.
- Away to the Malheur Bird Refuge. Radio talk by Howard Zahniser, in charge, Section of Current and Visual Information, Conservation Day Program. National Farm and Home Hour, July 9.

WILDLIFE RESEARCH

Wildlife Surveys

Make Field Trip in New England.--Dr. H. H. T. Jackson, in charge of the Section of Wildlife Surveys, and J. Paul Miller inspected the field research projects and demonstration units at cooperative research units and conditions at other points in New England, June 19 to 30. They also conferred with Forest Service officials at the Northeastern Forest Experiment Station, New Haven, Conn., and with John Pearce visited the Pillsbury Reservation, N. H. Before returning to Washington, they also visited Dr. Paul D. Dalke, leader of the Connecticut Research Unit at Storrs, and C. M. Aldous, leader of the Maine Research Unit at Orono.

On field Trip to Northwest.--Lec K. Couch left on June 4, on an extended western trip and on his way conferred with Dr. L. E. Hicks, of the Ohio Research Unit, and Logan J. Bennett, of the Iowa Unit. He also planned to spend several days with Arthur S. Einarsen, of the Oregon Unit, in inspecting field activities, and then visit the Pacific Northwest Forest Experiment Station and confer with officials in charge of the Olympia National Forest. Mr. Couch also planned to confer with E. E. Horn, stationed at Berkeley, Calif.; William Marshall at the Bear River Migratory Bird Refuge, Utah; and Dr. Daniel I. Rasmussen, of the Utah Research Unit. He expects to return to Washington about August 15.

Continues Mammal Survey.--E. A. Goldman left May 27, for Arizona, where he will continue to assemble mammal specimens in further preparation of his work on the mammals of Arizona. He will also inspect collections of the Museum of Vertebrate Zoology and other collections at Berkeley, Calif. Upon reaching Arizona he was joined by his son, Luther C., who will assist him. He will return to Washington early in October.

Collects Information for Book.--During the last three weeks in June, Dr. Harry C. Oberholser visited museums in the Northeastern States, gathering information for his book on the birds of Texas, and conferred with persons interested in the work of the Bureau. Museums visited are at Princeton, N. J.; New York City; New Haven, Conn.; Cambridge, Boston, and Springfield, Mass.; and Philadelphia, Pa. Dr. Oberholser spoke on the Bureau's bird refuge program and accomplishments before a representative audience at East Haddam, Conn., and visited the office of the State Fish and Game Department at Hartford, Conn. He returned to Washington on June 30.

Returns from Field.--J. Paul Miller, of this Section, and Burwell Powell, of the Bureau of Agricultural Economics, accompanied by Kenneth Lawrence, returned early in June from a trip through Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Oklahoma, New Mexico, Arizona, California, Nevada, Utah, Wyoming, Colorado, Kansas, Missouri, Arkansas, Tennessee, Kentucky, and West Virginia. They conferred with officials of the State agricultural colleges, State game departments, State planning boards, and others interested in wildlife and agricultural relationships to determine the possibilities of developing methods of wildlife management that may prove mutually advantageous to the land-owner, the sportsman, and the public. They also visited many wildlife areas where different methods are now being used for the restoration and maintenance of birds and animals.

Studies Vanishing Species.--To determine the present status and needs of vanishing species of prairie chicken in Texas, Dr. Walter P. Taylor, leader of the Texas Research Unit, took two trips in April, one on April 5 to 10, to the Panhandle area, and the other on April 21 to 27, to Cameron and Hidalgo Counties in the Lower Rio Grande Valley. R. E. Callender, extension specialist in wildlife conservation, accompanied him to the Panhandle area, and C. R. Landon, of San Antonio, district agent, Division of Game Management, assisted in collecting information

on many species. In addition to data on prairie chickens, information was obtained on prong-horned antelope, peccary, black-bellied tree duck, ocelot, jaguar, white-tailed kite, Mississippi kite, Sennett's white-tailed hawk, black-footed ferret, Texas beaver, Rio Grande beaver, eyra cat, coati, lobo wolf, Texas bighorn, jacana, chachalaca, white-winged dove, green jay, groove-billed ani, red-billed pigeon, white-fronted dove, masked duck, aplomado falcon, Mexican black hawk, and otter.

Prairie Chicken Census.--A total of 625 Attwater prairie chickens have been counted thus far in the early morning censuses being made in Colorado, Austin, and Wharton Counties, reports Dr. Taylor. Colorado County led with 400, and in Wharton and Austin Counties there were 150 and 75 prairie chickens, respectively. More than 10,000 acres have been covered by State Game Warden T. T. Waddell and V. W. Lehmann, field biologist, who are making the censuses.

Dr. Taylor reports that the outstanding limiting factor in the production of prairie chickens in these counties is the excessive burning of pastures. This reduces food and cover, increases predation, and forces the chickens to nest in poorly drained places where they are in danger of being flooded out. A recommendation to prevent these conditions by leaving 15 to 25 percent of the pasture unburned, was endorsed at a meeting of landowners held in Eagle Lake, Colorado County, on May 1.

During May Mr. Lehmann observed 13 prairie chicken nests, 4 of which successfully hatched young. Of the remaining 9 nests, 3 were destroyed by skunks, 2 by man, 1 by a red wolf, 1 by an opossum, 1 by an opossum or skunk, and 1 was deserted. The earliest hatch was recorded April 26, and the latest on June 2. The incubation period was approximately 24 1-2 days and the hatching period about 24 hours, or in other words about 26 days elapse between the beginning of incubation and the time young leave their nest. Eggs in the four nests that hatched young were 100 percent fertile.

Known causes of infant mortality include: (1) fire and acrobatic ants; (2) house cats; (3) hawks (species not yet identified), and (4) rice-field flooding. Chicks are brooded fully 40 percent of the time during the first week, but little thereafter except early in the morning, at night, and during inclement weather. Cover preferences, practically the same as those of adults, are grassland areas with sandy knolls and hardpan areas. Small grasshoppers were the main food of the young during May, and a favorite food of adult birds at that time of year appears to be the yellow flowers of the sensitive briar (*Morongia* sp.). Growth and development of young birds appears to be rapid, and chicks 4 to 5 weeks of age are as large as mature bobwhites and make sustained flights from 150 to more than 200 yards. Although the broods and adults drink surface water they apparently can exist independently of such a supply during May. Looseness of the family group also is considered one of the main causes of young bird mortality as the chicks frequently become lost from the brood. Molting of adult males become general about May 15, and this year the booming period ended May 17.

Addresses University Students.--Dr. Taylor spoke on "Wildlife Conservation" before the students of Louisiana State University, Baton Rouge, at the university auditorium on May 3, and the following evening showed four motion pictures on wildlife, two from the Biological Survey and others from

the National Association of Audubon Societies. On May 5, he went to the Southern Forest Experiment Station, New Orleans, La., where he conferred with Director Demmon and Assistant Forester Forsling, and also with Dr. W. C. Wakeley and E. W. Gemmer of the same station. Earlier in the month, Dr. Taylor visited the western parishes of Louisiana and noted that the longleaf pine there has been practically removed, and that the habitat of wildlife in this section has been seriously affected.

On May 5, he visited Avery Island, La., and observed nesting waterfowl. He also addressed a combined meeting of the Beaumont Nature Club, the Rod and Reel Club, and the Southeast Texas Fish and Game Protective Association at the Millard School at Beaumont. At noon the following day he addressed the Beaumont Lions Club on wildlife conservation, and in company with R. E. Jackson, president of the East Texas Big Thicket Association, visited Port Arthur and Sabine Pass.

Food Patches Planted in Connecticut.---Dr. Paul D. Dalke, leader of the Connecticut Research Unit, reports that provision of fall and winter food is especially important in farm game-management practices in Connecticut, as agricultural practices in that State leave very little fall and winter food for pheasants and quail. This makes it necessary to plant grain, or use some system of artificial feeding, such as shelters, hoppers, or other mechanical devices.

On the Lebanon demonstration area grain is being planted, and during May 10 food patches, varying in size from a quarter to three-quarters of an acre, were planted. These patches were also fertilized with lime and a 5-8-7 fertilizer, as soil tests indicated very low fertility. Local labor was employed in the plowing and planting the patches, which were difficult to reach as most of them are within pastures far from roads and passable lanes. The following grains were planted: Japanese millet, beaver milo, broom corn sorghum, dwarf milo maize, Siberian millet, Japanese buckwheat, red sumac sorghum, sumac cane, sunflowers, German millet, sudan grass, and flax. One hundred pounds of broom corn sorghum were supplied free by a State institution that makes brooms. Red sumac, sorghum, sumac cane, and beaver milo were obtained as sample seeds from the Bureau of Plant Industry, and other seeds were purchased from commercial dealers.

Dual Sampling Method Proves Reliable.---Dr. Dalke reports that the dual sampling method developed as a short cut for determining the total annual game kill, has been applied to rabbits, and that the 10 percent sample was in error by less than 1 percent when compared to the actual count.

The kill per hunter report for the period 1923-24 fluctuated from 2.1 to 4.36 rabbits and the variation in the kill per license issued was 0.9 to 1.9. The latter figures do not represent adequately the nature of changes, as the differences in the kill per hunter report might indicate cyclic changes. These figures, 2.1 to 4.36, however, are separated by only one year and therefore are not indicative of the low and high periods of a cycle. An analysis of the kill per hunter report for various towns in the State shows a rather consistent relationship. All the medium-sized manufacturing towns led in the number of rabbits reported killed. The rural towns reported the lowest and appeared to hold this same relationship in all sections of the State. The depression apparently made little difference in the kill in either the manufacturing or the rural towns.

Deer Cover Planting Completed.--Shaler E. Aldous, who is carrying on research work in connection with the Lake States Experiment Station at St. Paul, Minn., reports that the cover planting for deer and other game on the Onion Mountain section of the Temperance District, near Tofte, Minn., has been completed. A total of 695 trees was transplanted into five clumps to connect fragments of deer yards, create a protective cover between the yards, and make the browse species adjoining the plantings available to deer. These trees consisted of 88 white cedar, 213 balsam fir, 17 white spruce, and 377 black spruce, and varied from 2 to 14 feet in height. All the trees were removed from areas where they were too dense or were being suppressed by larger trees, the cost per tree being approximately 25 cents. Each tree was staked, numbered, and accurately measured. If the survival is good, the use of this area for game will be stepped up 5 to 20 years ahead that of a similar plantation of seedling stock. Seedlings planted on this area in 1933 were a total failure, whereas clump transplantings of 6 to 8 foot balsam fir and black spruce in 1935 have thus far shown about a 95 percent survival and are already being used by the game.

Studies Sage Grouse.--Dr. Daniel I. Rasmussen, leader of the Utah Research Unit, reports that during May, Lynn Griner, graduate student of the Utah State Agricultural College, continued his observations of sage grouse, and from May 22 to 25, the game management class of the college found 50 grouse nests in a nesting survey trip in Strawberry Valley. Mr. Griner is making it a point to observe the results of incubation, nesting success, and effects of related conditions, and from his first tabulation there appears to be a slight increase this year over last year in the number of eggs per nest.

Quail Area Established.--On May 24, C. O. Handley, leader of the Virginia Research Unit, appeared before the State Commission of Game and Inland Fisheries and requested that the Camp Lee State Game Refuge be assigned to the research unit as a quail demonstration area. The request was granted and the planting program he has outlined is being carried out by C. R. Davis, caretaker of the refuge, and W. W. Bailey. It is hoped to operate the area economically by so planting the food strips for quail and turkey that the surplus grain can be harvested.

Find Nest of Black Duck.--Mr. Handley and William P. Baldwin, graduate student of the Virginia Polytechnic Institute, spent the afternoon of April 3, and the morning of April 4, searching for nests of the yellow-crowned night heron and the black duck in the Roanoke Creek Swamp, near Drakes Branch, Charlotte County, Va., with T. R. Watkins who is familiar with the area and had reported finding nests and eggs of both birds there. Several old nests, apparently those of the yellow-crowned night heron, were found but no new nests as yet. A nest containing 12 newly laid eggs of the black duck was found on April 4. This is probably the first authentic nesting record for the species in the interior of the State.

Investigates Turkey Project.--Mr. Handley spent April 4 to 10 at the Camp Lee State Game Refuge, checking the work of W. W. Bailey, graduate student, who is working on the problem for his major thesis, "A Method for the Production of Genuine Wild Turkeys for Restocking Purposes." Mr. Bailey has devoted most of his time to developing methods for getting the gobblers into breeding enclosures and states that the successful use of any type of entrance must be based on observations of the activities of both the wild gobblers and tame hens.

Woodcock Management Studies.--C. M. Aldous, leader of the Maine Research Unit, reports that Messrs. Swanson, Benchley, and Greeley continued their woodcock investigations on the Moosehorn area during May and found many additional singing grounds and nesting birds. The three banded 71 young woodcocks on this area and the Edmunds site.

Although the nest predations have not been large they are an important factor in woodcock management. Investigations thus far indicate that the red squirrel is an active nest destroyer. The use of a dog in finding woodcock for banding has been found indispensable, but if the mother bird is disturbed by a dog during the laying period or prior to incubation it has been found that she is likely to desert the nest. As soon as incubation begins the bird is likely to remain with her clutch of eggs, even though she may be disturbed greatly.

Obtain Bird and Mammal Collection.--The Oregon State Game Commission has donated its bird and mammal skin collection to the Oregon Research Unit, and final arrangements for taking over the collection were completed recently, according to Arthur S. Einarsen, leader of the Oregon Unit. The collection, it is pointed out, will be of great help to the research unit.

Study Food Habits of Deer.--Dr. Allen M. Pearson, leader of the Alabama Research Unit, reports that deer were feeding along the railroad right-of-way on the Allison Game Preserve during April and continued to do so in May. The animals ate frequently of black medic, and also post oak leaves, mushrooms, and some fungi. Observations of their eating field crops were made, but no extensive damage was found. On May 27 in two fields cotton plants 8 to 9 inches high were damaged by deer, in many rows the tops having been eaten. Some of the local growers tried to protect their crops by burning stumps in the fields and occasionally shooting firecrackers at night. In the vicinity of Bellamy scarecrows are considered of little value in keeping deer away, but farther south in Washington County they are reported to be effective.

Builds Box Traps.--C. P. Patton, graduate student at the Virginia Polytechnic Institute at Blacksburg, recently spent two days with C. H. M. Barrett, Bureau taxidermist, in studying trap-building techniques. He was supplied with spring material for 100 metal box traps and later spent 10 days at the Virginia Research Unit building traps according to Mr. Barrett's recommendations.

Visits Patuxent Refuge.--The Nature Section of the Woman's Club of Chevy Chase, Md., under the chairmanship of Mrs. Hartley H. T. Jackson, visited the Patuxent Research Refuge, May 13, on one of its regular field nature trips. Dr. L. C. Morley greeted the party of 25 women, explained the plans and research program for the refuge, and with Mrs. Morley helped guide the group over nature trails. After luncheon, Dr. Jackson showed blueprints and plans for the proposed laboratory and other buildings. This is the first organized group outside the Department to inspect the refuge.

Gives Addresses on Wildlife.--During May Dr. Lawrence E. Hicks, leader of the Ohio Research Unit, gave the following three addresses: "Wildlife Refuges and Sanctuaries and How they Operate," before Franklin County Natural Resources Council, on May 10; "Facilities for Vertebrate Research in Ohio," before the Ohio Academy of Science, on May 15; and "Suggestions for Conservation Education Work," before the Ohio Division of Conservation Wildlife Management Staff, on May 11.

On Detail in Washington.--John Pearce, recently appointed assistant biologist with headquarters at the Northeastern Forest Experiment Station, New Haven, Conn., spent about two weeks during May in the Washington office studying reports and correspondence in connection with his new work. He also conferred with members of the Division of Wildlife Research and attended the meeting of the American Society of Mammalogists.

Swanson Leaves University of Maine.--Gustave A. Swanson, assistant to C. M. Aldous, leader of the Maine Research Unit, has resigned to take a position as instructor in wildlife management at the University of Minnesota. This position was formerly held by Dr. Ralph T. King, who has accepted the directorship of the Roosevelt Wildlife Forest Experiment Station, Syracuse, N. Y.

On Detail in Washington.--Thos. D. Burleigh, stationed at Gulfport, Miss., arrived in Washington on June 4, for nearly a month's detail during which he studied the Survey's bird collection and conferred with members of the Washington staff.

Food Habits Research

Testifies in Swan Shooting Case.--Dr. Clarence Cottam, in charge of the Section of Food Habits, testified in Federal Court at Baltimore, Md., on June 15, in connection with the trial of two men charged with illegally shooting swans. The birds with their heads, wings, and feet cut off were confiscated last fall, but identification from their skeletons was made at the Food Habits laboratory. Because Dr. Cottam aided in identifying the birds he was subpoenaed to appear as a witness in court.

From May 26 to 31, Dr. Cottam was in the Tennessee Valley, investigating the effects that methods used by the Tennessee Valley Authority to eradicate the Anopheles mosquito have on wildlife. Wildlife and entomological specialists of the T. V. A. cooperated in making an inspection of the areas on Wheeler, Wilson, and Norris Lakes. Early in June Dr. Cottam also inspected a proposed State-wide W. P. A. mosquito-control project in Connecticut.

On July 21, Dr. Cottam and Dr. W. S. Bourn left for Delaware where they continued investigations begun last fall on quadrats on the Bombay Hook Migratory Waterfowl Refuge and other areas where drainage operations have been under way. They also studied conditions of wildlife in Maryland and the related effects of mosquito-control operations.

Study Waterfowl Feeding Areas.--On June 2, F. M. Uhler and C. F. Smith left for Delaware and Maryland to study the possible effects of the deepening of the Chesapeake & Delaware Canal on adjacent waterfowl feeding grounds. After investigating this project they stopped at the Blackwater Migratory Bird Refuge, Md., to study chemical plots for marsh weed control and to establish quadrats for growth analysis. From there they went to Virginia and North Carolina to study waterfowl food plants in Back Bay, North Bay, and Currituck Sound, and to examine the chemical condition of these waters. They also made analyses of water from swamps and water draining into Pamlico and Albemarle Sounds to determine the effects of certain chemical and physical conditions on aquatic plant growth and the influence of tidal movements on waterfowl feeding grounds. After a brief study of the duck foods on Lake Mattamuskeet Migratory Waterfowl Refuge, N. C., the two returned to Washington on June 9.

Helps in Poison-Spray Experiment.--C. W. Collins, senior entomologist in charge of the Morristown, N. J., station of the Bureau of Entomology and Plant Quarantine, has been assisting this Section in the experimental work that is under way to determine the effects of poisonous insect sprays on bird life. During the first two weeks in June he supplied several thousand canker worms and spiny elm caterpillars for use in laboratory investigations. Additional larval forms as may be necessary for the experiment also have been promised.

Continues Turkey, Chukar Studies.--During the past month, H. L. Blakey, with headquarters at St. Louis, Mo., has continued to study turkey management in Missouri, and also the artificial propagation of chukar partridges in that State, particularly the results of plantings of these birds in various areas. Early in May he spent three days at the state game farm at Windsor, studying chukar management in preparation for the development of a chukar liberation project for the State. Mr. Blakey is also investigating methods for retarding natural forest growth so as to preserve open plots on management research areas in forests.

Inspects Drainage Projects.--Early in June Dr. W. S. Bourn inspected several proposed drainage projects of the Works Progress Administration in South Carolina to ascertain the effects they might have on wildlife.

Sacramento Office Notes.--Two sacks of eelgrass (*Zostera marina*) were collected early in May at Monterey Bay, Calif., and shipped to C. S. Williams at the Bear River Migratory Bird Refuge, Utah, for experimental planting.

European starling skins which Johnson A. Neff collected and helped prepare while he was in Washington last winter were recently received in Sacramento and distributed to interested agricultural commissioners in several California counties in order that the staff of each of these offices may be familiar with the bird should it arrive in California.

Mr. Neff was in Glenn County, May 10 to 15, investigating complaints of serious damage to almonds by blackbirds, crows, and magpies. Later in the month he observed severe seed damage to test plots of flax at the Department of Agriculture experiment station at Shafter. The birds were cleaning up the seed crop as it ripened and it appeared that only a small percentage of the seed would be left.

Several Sacramento boy scouts were assisted by Mr. Neff in their bird studies during May, and May 15 he accompanied the scoutmaster and 8 scouts from Willows on a bird study trip. One of the Sacramento scouts reports that the examiner in approving his merit badge examination on birds complimented him on the best record made within that examiner's experience.

On May 23 and 24, Mr. Neff and Assistant Entomologist C. C. Wilson studied bird activity on grasshopper-infested areas on Rancho El Suey near Santa Maria. On this area Mr. Wilson has made consistent observations for some years of grasshoppers and ecological problems connected with their abundance. The area was thoroughly gone over for bird activity and specimens collected for food habits examination.

Mr. Neff's manuscript for Part II, "Procedure and Methods in Controlling Birds Injurious to Agriculture in California," has been completed for publication.

Confers With Field Officials.---F. M. Uhler was in Winona, Minn., about ten days during July conferring with field officials of the Bureau on rezoning the Upper Mississippi River Wildlife and Fish Refuge. He was consulted on biological factors to be considered in connection with the rezoning.

Appointed.---Miss Golda S. Payne was given temporary appointment on June 7 as scientific indexer in the Washington office. Her duties will consist of indexing material from scientific publications for reference by the personnel of this Section and others. Miss Payne has been employed for the past few seasons as librarian and secretary in a local educational institution.

Distribution and Migration of Birds

Attends Philadelphia Meeting.---F. C. Lincoln, in charge of the Section of Distribution and Migration of Birds, attended the meeting of the Eastern Bird Banding Association at the Philadelphia Academy of Sciences on May 7. After several members reported on their experiences, Mr. Lincoln spoke on the general progress of the Survey's banding work, and also outlined its waterfowl restoration program and urged its support. Following this he showed the Bureau's motion picture on "The How and Why of Bird Banding."

Broadcasts.--On June 18, Mr. Lincoln and Morse Salisbury, Chief of the Department's Radio Service, discussed the subject "Making Wild-fowl Hunting Regulations Intelligently" during the Conservation Day program of the National Farm and Home Hour.

Makes Air Survey of Newfoundland.--Through the cooperation of the Newfoundland Department of Natural Resources, Harold S. Peters, Atlantic flyway biologist, made an aerial survey on June 3, of Newfoundland. He covered some of the best duck breeding grounds of the island and obtained a number of good aerial photographs. Nesting conditions for both ducks and geese, says Mr. Peters, appear satisfactory in Newfoundland, and there appears to be an increase in the numbers of each this spring. He believes, however, that relatively few ducks and geese nest in Newfoundland as compared with places farther north in Canada. Mr. Peters and U. S. Game Management Agent Ernest R. Atkinson also have informed the Bureau that all persons interviewed on their surveys through the Maritime Provinces report more favorable waterfowl conditions this year. On June 19, Mr. Peters joined the Arctic expedition of Commander Donald B. MacMillan, which is traveling to the northern part of the Labrador Peninsula and Baffin Island. In that region Mr. Peters will study the conditions affecting the Atlantic brant on its nesting grounds, and also snow and blue geese and some of the sea ducks.

Investigations in Central Canada.--Investigating waterfowl conditions in southern Manitoba, U. S. Game Management Agents Edward T. Carter and Harry T. Maltby report very low water in the Netley and Lake Manitoba marshes. A 4-day's rain, however, caused a sudden rise of 18 to 20 inches, but this was accompanied by a sudden drop in temperature to 32 degrees in the nesting area, which may cause a heavy loss of eggs. In these marshes the two investigators have noted a decrease over last year in the numbers of pintails, mallards, and canvasbacks. No green-winged teals have been observed.

Dr. George B. Saunders, Central flyway biologist, and U. S. Game Management Agent Robert Bach are investigating conditions in Saskatchewan and Alberta. A letter from them dated June 9, states that they had just returned from a 6-day reconnaissance of the area between Edmonton and Peace River. They went as far north as Fort St. John, B. C., and their next long trip will be to the Lac la Biche and Cold Lake areas. No observations have been reported as yet.

Reports Waterfowl Increase.--After working north to the Caribou country of the Fraser Plateau, Williams Lake, and Prince George, in British Columbia, Luther J. Goldman, Pacific flyway biologist, reports some improvement as a whole in the status of waterfowl in that Province. Species showing an increase in numbers are the mallard, pintail, lesser scaup, goldeneye, bufflehead, and green and blue-winged teals. No improvement has been noted thus far by Mr. Goldman in the status of the canvasback and redhead.

Gillham Traveling to Arctic Coast.---Charles E. Gillham, Mississippi flyway biologist, is traveling north to Edmonton and down the Athabaska River to Fort McMurray, whence he will follow the Mackenzie River to the Arctic coast. His plans include visits to Chipewyan, Resolution, Bear Lake, and Coronation Gulf. Mr. Gillham expected to arrive at Aklavik on July 10, after which he planned to investigate waterfowl conditions on the Mackenzie delta and the coast until August 20. He will return by the way of Old Crow, Yukon, and Alaska.

Investigations with Common Terns.---Dr. Oliver L. Austin, North Eastham, Cape Cod, Mass., is experiencing a banner year in work with common terns. In addition to an unusually large number of new birds to be banded, he is obtaining many returns from birds that he banded in previous years, among them one banded in 1924, one in 1925, two in 1926, one in 1927, two in 1928, and 12 in 1929.

Chimney Swifts at Least 8 Years Old.---A chimney swift banded in May 1930, at Swarthmore, Pa., was trapped and released in the same locality on May 6, 1937, while one banded in June 1930 at Kingston, Ontario, was trapped and released in the same locality in June 1937. These birds are at least eight years of age, and as they were both released in good condition it is possible that they may be retrapped again.

Foreign Returns from Banded Birds.---The following table shows band number, place and date of banding, and place and date of returns of outstanding interest.

Royal tern:

A531803, Charleston Co., S. C., 7/18/31; Pinar del Rio, Cuba, 3/15/37.

Common tern:

36-341855, Penikese Is., Mass., 7/14/36; Illes-du-Salut, Fr. Guiana, 4/16/37.

36-341907, Penikese Is., Mass., 7/14/36; Trinidad, B. W. I., 5/30/37.

36-342551, Penikese Is., Mass., 7/14/36; Georgetown, Br. Guiana, 5/3/37.

Herring gull:

36-645761, Nents Island, B. C., 8/3/36; Villa J. Cardel, Veracruz, Mex., 3/25/37.

36-659245, Delta Co., Mich., 6/21/36; Tampico, Tamaulipas, Mex., 3/31/37.

Brown pelican:

36-800481, Brevard Reservation, Fla., 10/4/36; Doce Laguas Keys, Cuba, 4/1/37.

Pintail:

36-609642, Avery Island, La., 12/28/35; Patos, Durango, Mex., 2/8/37.

Redhead:

36-605250, Burns, Oreg., 10/2/35; La Salina, Baja Calif., Mex., 2/23/37.

American Egret:

36-720022, Glen Allan, Miss., 6/8/36; San Cristobel, Cuba, 4/6/37.

Coot:

36-613362, Avery Island, La., 3/28/36; Carrant Island, B. W. I., 1/23/37.

Fur Resources

Attends Canadian Fur Farmers Meeting.--Frank G. Ashbrook, in charge of the Section of Fur Resources, addressed the meeting of Western Canada Fur Breeders Association at Winnipeg, Manitoba, on June 10, on "Organization of Fur Animal Research in the United States," and discussed with officials of the Hudson's Bay Company from England the establishment of large beaver sanctuaries by their company. He also visited many of the larger fur farms in Manitoba and discussed research problems with those in charge of experimental work in Canada. Before going to Winnipeg he stopped at the Fur Animal Experiment Station, Saratoga Springs, N. Y., to inspect the progress of construction work under way there, and to review the experimental work. At New York City, he conferred with officials of the Department of Justice, and also with officials of the New York World's Fair Committee.

Addresses Retail Furriers.--On July 2, Mr. Ashbrook spoke on the importance of the conservation of fur animals at the eighth International Retail Furriers Convention and Trade Show, at Baltimore, Md. He recommended that an educational committee be selected by the convention for cooperating with other agencies interested in wildlife conservation.

Investigates Chinese Skin Importations.--Mr. Ashbrook has been detailed by the Treasury Department to investigate certain phases of the importation of dog and goat skins from China, in connection with cases involving import duty payments in this country. He sailed for China from Seattle, Wash., on July 17, and expects to return late in September.

Feed Manufacturers Meet at Rabbit Station.--Results of extensive research in the feeding and breeding of rabbits were explained by Director George S. Templeton of the U. S. Rabbit Experiment Station, Fontana, Calif., at a special meeting of feed manufacturers and managers of feed distributing agencies held at the Station on June 7. This was the first meeting of its kind at the Station, and among those attending were 41 executive and nutritional experts of 15 milling companies.

Approximately 1,200 rabbits are kept at the Station for research work, and during the past two years considerable progress has been made in the development of better feeding and management methods. Results obtained with the use of the new self-feeder developed at the Station and the feeding of whole grains were explained by Mr. Templeton. The visitors appeared well impressed with the research program and its progress.

Addresses Fur Breeders.--Recent experimental work of the Bureau with foxes and minks and data obtained from the sale of skins by a large fox ranch were discussed by Chas. E. Kellogg on June 21 at a meeting of the Minnesota Silver Fox and Fur Breeders Association at Minneapolis. Officers of the association reported the meeting the largest ever held. On June 22 and 23, Mr. Kellogg inspected a proposed muskrat development project for the Bad River Indian Reservation in Wisconsin, and on his way back to Washington he visited a fox ranch in Wisconsin, and also conferred with officials of fur breeders and rabbit breeders associations, feed companies, and individual breeders.

Building Under Way at Fur Station.--Final approval of the contract for the construction of an office building at the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., was obtained June 9. Construction was begun immediately, and it is hoped that the new building will be ready for occupancy early in fall. Since it is being erected on a new site it was necessary to build some new roads and also provide parking places for visitors. With the repair of guard fences and pens completed practically all the equipment at the Station is in good condition. David C. Cleland, associate architect of the Division of Migratory Waterfowl, spent several days in June at the Station, giving technical advice on construction.

Reduces Rabbit Mortality.--A study of mortality among young rabbits shows a number of young from 1 to 10 days of age are usually lost because of heat. The young are rather delicate and it is very difficult to regulate the quantity of wool in their nests so they will be warm at night and not too warm during the day. By building a simple and inexpensive screened box for holding the young and placing it in the hutch, officials at the Rabbit Experiment Station have been able to reduce losses in nests appreciably. When the temperature in the rabbitry approaches 80 degrees in the morning and there are indications of it going higher, the litters from 1 to 11 days of age are placed in the screened box. When it becomes cool in the evening the young are then returned to their original nest boxes.

Grain Sorghums Tested for Palatability.--A preliminary experiment has just been completed at the Rabbit Experiment Station in which the rabbit's preference for various sorghum grains has been determined. Although milo was the first choice, the fact that other grain sorghums also were eaten in large quantities would indicate that all the sorghums can be used in the ration with good results. These sorghums are grown extensively in areas where rainfall sometimes is deficient, and should help solve the feeding problem of rabbit raisers in these sections.

Disease Control

Speaks on Disease Control.--On June 2, Dr. J. E. Shillinger addressed the New England Mink and Fur Breeders Association at its annual meeting in Boston, Mass., and conferred with officials and members of the Association. Among the subjects discussed was this year's low production among breeding foxes in the New England States. Investigations on these ranches by Dr. Shillinger indicate that in some instances infectious diseases, or faulty management and hygienic practices, may be responsible. Since there is need for greater research on this subject, the Section of Disease Control is conducting preliminary tests to determine infectious diseases that may attack foxes and affect their reproduction.

Meets Rabbit Breeders.--Dr. Edward L. Vail, stationed at Los Angeles, Calif., attended the meeting of the Association of Rabbit Breeders' Clubs of central California at Hayward, on June 13, and conferred with a number of the members on their disease problems. On his way to the meeting he stopped at several points in the central part of the State and observed the fur farming activities in progress.

LAND ACQUISITION

Returns from Field.--Arthur A. Reimer, land valuation engineer, returned on June 18 from a 10-day field inspection of the Savannah River Migratory Bird Refuge, Ga., and the St. Marks Migratory Bird Refuge, Fla.

Personnel Reduces.--Owing to curtailment of funds at the beginning of the 1938 fiscal year, it has been necessary to reduce the personnel in this Division, both in the field and Washington offices. Efforts have been made to place affected employees in the Bureau wherever possible and some have already been transferred to other Divisions. Miss Gladys M. Wilcox, Miss Edith Williams, and Mrs. Emily Hilbert have transferred to the Division of Administration and Miss Maxine Rasmussen to the Division of Game Management. Gibson D. Hall, engineering draftsman, has transferred to the War Department at Pittsburgh, Pa.

Field Offices Combined.--The St. Louis and San Antonio offices of this Division have been combined and will now be located in Des Moines, Iowa. The Ogden office is being moved to Denver, Colo.

Inspects Projects.--Early in May Harold W. Hicks, regional chief of the St. Louis office, made an inspection trip to Minot and Fargo, N. Dak., and to Manistique, Mich., in connection with land acquisition matters on the Lower Souris, Upper Souris, Tamarac, and Seney projects. Early in June Howard J. Sargeant, assistant land valuation engineer of the St. Louis office, made an appraisal of a tract of land to be acquired by the Soil Conservation Service at Elsberry, Mo., for a nursery site.

MIGRATORY WATERFOWL

Visits Soil Conservation Projects.--A. C. Elmer, assistant chief of the Division, was a member of the Water Resources Committee party that inspected several Soil Conservation and Forest Service projects in North Carolina, South Carolina, Georgia, and Tennessee July 6 to 10. He reports that the field meeting of the committee was interesting and informative. On July 7, the party inspected the High Rock Reservoir on the Yadkin River between Lexington and Salisbury, N. C., a Soil Conservation Project exemplary of the silting now taking place in impoundment reservoirs in this region. Next they visited the Central Piedmont Soil Erosion Experiment Station, 10 miles west of Statesville, N. C., which is one of a group of similar stations at strategic points within the major soil groups of the United States. The location at Statesville was selected as representative of the general conditions prevalent in the Central Piedmont Plateau. It is operated under cooperative agreement by the Federal and State Departments of Agriculture and the North Carolina Agricultural Experiment Station, which has turned over the farm property to the Soil Conservation Service for these experiments. The Huntersville Demonstration Area, another Soil Conservation project near Charlotte, N. C., was also visited on July 7, as was the Rock Hill Project and Nursery near York, S. C.

On July 8, the party continued its inspection of Soil Conservation areas, going first through the Spartanburg Project near Spartanburg, S.C., a project of 105,000 acres, embracing the entire watershed of the South Tyger River, and through the Sedimentation laboratory on this project, where the Soil Conservation Service is conducting experiments in an attempt to determine the sedimentation load on the Enoree River. Other projects visited this day were one near Anderson, S. C., known as the "Little Beaver Dam Demonstration Area," and the Portman Shoals Reservoir. The latter, they report, is an excellent example of what will result if sedimentation is allowed to continue uncurbed.

July 9 was spent inspecting the Coweeta Experimental Forest in the Nantahala National Forest, where data are being obtained on the water recharge and discharge of specific watersheds through the measurement of precipitation, evaporation, run-off, and other forms of water discharge; the Hiwassee Dam site, a proposed T. V. A. project which, when constructed, will be higher than the present T. V. A. Norris Dam but will not impound so much water; and an area near Ducktown, Tenn., which is entirely denuded of vegetation as a result of a mining enterprise started there 40 or 50 years ago. The fumes from the production of sulphuric acid laid bare approximately 15 square miles of land, which is devoid of animal life as well as plant life and is full of gulleys. The Forest Service and Soil Conservation Service are conducting experiments in rainfall, temperature, and wind velocity on this area to see if anything can be done towards its restoration.

Attends Forestry Meeting.--Mr. Elmer attended the annual meeting from May 31 to June 3, at Cincinnati, Ohio, of the American Forestry and Ohio Forestry Associations. The first day was devoted to discussions, including one by the Secretary of Agriculture on water conservation and flood control problems. A 100-mile boat trip on the Ohio River on the second day gave the group a first-hand view of after-flood scenes and river works designed to deal with flood waters. During the trip a graphic description of the 1937 flood and an explanation of the problems of preparing for and dealing with future floods were given by a representative of the U. S. Army Engineers.

On June 2, a tour of the Hocking State Park and Forest was made, and the last day of the meeting was devoted to a motor tour of the Muskingum Conservancy District, a political subdivision of 18 counties created in 1933 under the provisions of the Ohio Conservancy Act. Here the party saw a diversified but coordinated program of land management for controlling the waters of the Muskingum Valley, a project estimated to cost more than \$43,000,000. This tour included a visit to the 242-acre Soil Conservation project on the G. E. Butler farm, which is representative of the projects that have been developed the past 6 years in soil conservation work. Several of the 14 dams built in the Conservancy District to control floods and conserve water were also inspected. It is believed that the conservation pools which are established will form an important link in the chain of rest areas for migratory waterfowl in their spring and fall flights.

Long Lake Restored for Waterfowl.--M. O. Steen, easement project director, who was temporarily stationed in the Washington office recently, submits the following report on the Long Lake Migratory Waterfowl Refuge in Burleigh County, N. Dak.:

"Located near Bismark, N. Dak., in a huge, flat basin in the glacial drifts plains, lies Long Lake, once a famous waterfowl area. During the last decade it was a dry, barren lake bed much of the time, or if not dry, the water was so low and stagnant that frequent outbreaks of botulism occurred. When the Biological Survey began development work there late in the summer of 1935, a portion of the area had already been purchased, and easements were obtained on the remaining territory.

"Long Lake had only one fault--not enough water. It is a shallow lake of more than 14,000 acres fed by a watershed of only 150 square miles. Surveys of every possible source of supply reveals that additional water could not be obtained at a reasonable cost. Only one alternative remained--that of confining the annual flow of the existing watershed on whatever portion of the lake bed it would support.

"This has been done through the construction of dikes, which divide the lakes into three units. Units 1 and 2 have been filled to overflowing by recent heavy rains and cover 3,500 acres of the very best portion of the lake. Unit 1 can be expected to maintain itself under unfavorable conditions, and unit 2 will seldom, if ever, go dry. Unit 3, comprising more than 10,000 acres, can be expected to fill only during favorable seasons.

"Long Lake has again taken its place among the outstanding waterfowl areas in the nesting region of the Northwest. Great numbers of ducks, shorebirds, and other wildfowl are nesting there this season, and the nesting population can be expected to increase materially next year.

"Developments on the area include the construction of the three large dikes, eight small dams, 3 1/2 miles of graveled roads, 12 miles of trails, 21 miles of barbwire fence, 29 nesting islands, an observation tower, and a patrol cabin and garage of native stone."

Many Franklin's Gulls on Sand Lake.--Philip A. DuMont, assistant refuge manager of the Sand Lake Migratory Waterfowl Refuge, S. Dak., submits the following report showing that the Sand Lake Refuge is again proving an outstanding sanctuary for Franklin's gulls:

"These birds, feeding in all parts of Brown County and possibly beyond, are resting in the marshes both immediately north of Sand Lake and at Mud Lake, four miles north. In the evening, the gulls flock to the newly constructed artificial islands on the refuge, covering them until they look like white mounds in the reed-choked marsh. At least 6,000 gull nests have been found on the north side of Mud Lake, scattered throughout the newly created marsh area.

"During the early part of the season, nightly concentrations were limited to the birds nesting around Mud Lake; but since the last of June, the numbers resting on Sand Lake have steadily grown until now there are about 8,000 there. It is expected that this number will rapidly increase with the beginning of the flocking season, probably approaching or exceeding the total of 85,000 present on Sand Lake on August 19 last year.

"At present, the food of Franklin's gulls here consists almost exclusively of grasshoppers. Since the gulls digest food rapidly, several hundred grasshoppers are taken daily by each bird. Surprisingly, grasshoppers are also the principal food of the young gulls within a week after they have hatched. On one occasion, five grasshoppers, each more than an inch long, were coughed up by a young gull.

"Conditions for nesting on the refuge are ideal, and the many artificial islands built by the Sand Lake C. C. C. Camp provide convenient resting places. The nests are floating masses of dead rushes anchored among the green rushes and canes. The gulls seem to prefer to build their homes where the water is 2 to 3 feet deep, although some nests near the edge of Mud Lake are floating in 5 feet of water.

"Only two nests found contained four eggs. Two to three eggs seems to be the general rule. There is a surprising variation in the eggs, not only in color, but also in markings and shape. No two sets are exactly the same.

"The baby gulls are ready to take to the water within a few hours after hatching. It is amusing to watch one of these balls of down trying to clamber over a floating reed while swimming along. Often the obstacle is too large and the venturesome little gull is upset for its first ducking. It quickly rights itself, however, coming up as dry as before."

Mr. DuMont states that the farmers of the vicinity are fully aware of the value of this species, and that any of them will vouch for the quantity of cut-worms and grubs the gulls consume while following the plow in spring. Even field mice are devoured, as are dragonflies, locusts, and crickets.

Reports on Easement Refuges.---Roy N. Bach, North Dakota easement project biologist, submits the following report on the Hutchinson Lake Migratory Waterfowl Refuge, a 458-acre easement project in Kidder County:

"This area, rather worthless up to now, has suddenly become valuable. The little lake went over into the big one, and the big lake is as full as we would want to see it. There is more water here than there has been for years."

Of the 960-acre Lost Lake Migratory Waterfowl Refuge, another easement project in McLean County, Mr. Bach says:

"It would do you good to look at Lost Lake. I guess the lake has been 'found' at last. It is so full you can't see the drainage ditch; it couldn't get any fuller. I could scarcely see the dam at all, since about six inches of water were going over the top of it."

Mr. Bach also submitted the following report on the Chase Lake Migratory Bird Refuge in Stutsman County:

I spent two days on Chase Lake, and I would like to spend at least two weeks there. The little marsh is full, and the main lake has enough water to hold it and keep the islands separated for quite awhile. The important thing, however, is the fact that we have here perhaps the only breeding place in the State for pelicans and California gulls, with a few ring-bills mixed in. One hundred and four pelicans were on the island when I was there on April 8 and 9. They were very tame and got quite used to me. Two young pelicans were hatched at that time. The pelicans are a queer bird--the male sits on an egg or two, as well as the female.

"I did not count the California gulls; there were too many. I did count the eggs and the young, however, and will say here that there are about 850 young on the island and about 650 more eggs to hatch. The old birds were feeding their young on ground squirrels, mostly the thirteen lined.

"Three double-crested cormorants were nesting here, right on the ground."

Tree Nursery Established on Tule Lake.--In the April narrative report on the activities of C. C. C. Camps BF-1 and BR-20 on the Tule Lake Bird Refuge, Calif., submitted by Herbert H. Dill, biologist, appears the following on the progress being made by these camps in planting the tree nursery established there:

"The Biological Survey is establishing a 5-acre tree nursery near the refuge headquarters, capable of producing 125,000 trees per year. We are not starting at full capacity, however, as we have but 5,000 trees planted to date. The purpose of this nursery, which is under the care of Biologist Herbert H. Dill, is to establish a source of young trees for eventual planting along the dikes and along the refuge boundaries, for the purpose of checking soil erosion and providing food and cover for the native game birds.

"At present, two crews of C. C. C. boys are planting seedling trees, 30,000 of them, obtained from the Oregon State College Nursery at Corvallis. Of this lot, there are 10,000 each of Ponderosa pine, Chinese elm, and Russian olive. Eight thousand year-old poplars have been planted in the nursery for windbreaks. Every fifth row in the nursery is a row of poplars, which are readily adaptable to this climate, are fast growing and will provide windbreaks and shelter for the other varieties. Nineteen thousand cuttings are also being planted, including 14,000 Carolina poplars, 2,000 weeping willows, 2,500 golden willows, and 500 black cottonwoods.

"An assortment of miscellaneous trees also has been planted in the nursery, including the honey locust, the silver maple, Swegler's maple, black locust, Japanese barberry, lilac, honeysuckle, elderberry, wahoo, scarlet thorn, snowberry, coralberry, plum, wild cherry, buckthorn, and black willow."

Increase in Waterfowl.--A 10 to 15 percent increase over the previous season in the numbers of waterfowl in migration and nesting birds this spring was reported for Iowa by representatives of that State attending the annual meeting of the Midwest Game and Fish Commissioners at Sioux City, S. Dak., according to John N. Ball, associate refuge manager stationed at Mitchell, S. Dak. Mr. Ball attended the meeting and learned that in Iowa the blue-winged teal and the shoveler were the predominant nesting species. Representatives from Minnesota reported a 50 percent increase in the number of birds over the previous season; those from Nebraska and North Dakota reported a 25 percent increase in nesting ducks; South Dakota, a 50 to 300 percent increase, probably due to the filling up of potholes and water areas all over the State; Wisconsin, 20 percent increase in blue-winged teal, with other species being about the same in numbers, except for coots, which were slightly fewer.

The meeting was also attended by Burnie Maurek, acting director of Region 9, with headquarters at Minot, N. Dak.; Ray C. Steele, superintendent of the Upper Mississippi River Wildlife and Fish Refuge, Winona, Minn.; and Philip A. DuMont, assistant refuge manager of the Sand Lake Migratory Waterfowl Refuge, Columbia, S. Dak.

Visits Resettlement Project.--At the request of the Resettlement Administration, Robert H. Smith, assistant biologist of the White River Migratory Waterfowl Refuge, Ark., spent four days during May on the Resettlement Project LA-AK-2 at Fayetteville, Ark. This project contains 14,000 acres of excellent upland game country and an artificial lake that has good possibilities for development as a waterfowl area. Mr. Smith recommended the planting of waterfowl food plants in the lake, construction of fish shelters, stream surveys and improvements, and management policies with respect to food and cover for bobwhite quail, wild turkey, and white-tailed deer.

More Birds Nest on Lower Souris.--C. J. Henry, assistant refuge manager of the Lower Souris Migratory Waterfowl Refuge, N. Dak., in reporting on the birds noted on the Lower Souris Refuge this spring, says:

"Despite the poor run-off and resultant lack of water, the birds are showing an increased fondness for the area. For example, no snow or blue geese were noticed in 1936, but this year we had them with us from April 16 to May 18, in peak numbers of approximately 600 birds. They were mostly snow geese, with a sprinkling of blues. Another interesting incident is the appearance of the avocet as a nesting bird. Last year only two were seen in migration, while this year there are a number of pairs nesting, probably the first since the marsh was drained.

"Pelicans, cormorants, shorebirds, Hoelboell's grebes, Franklin's gulls, and diving ducks show spectacular increases this year; and although the duck migration in general was not nearly so large as last year's, the nesting population bids well to double that of last year.

Increased Nesting Reported on Valentine Refuge.--Ward M. Sharp, assistant refuge manager of the Valentine Migratory Waterfowl Refuge Nebr., reports that nesting surveys made during the 1937 season indicate that there is an increase of five to one over the 1936 season on Pelican, Marsh, and Dewey Lakes. Pintails, mallards, blue-winged teals, canvasbacks, redheads, ruddy ducks, and gadwalls are the most abundant nesters; and curlews, avocets, upland plovers, western willets, black terns, coots, rails, gallinules, grouse, pheasants, and several species of song birds also are nesting in large numbers on the refuge. Pintails show the most decided increase in numbers nesting on the refuge, although mallards, shovelers, and blue-winged teals also have increased substantially.

Tree Planting Progresses.--Earl R. Craven, junior refuge manager of the Arrowwood Migratory Waterfowl Refuge, N. Dak., reports that the W. P. A. employees planted 40,000 trees and shrubs on this refuge during April. A total of 2,500 caragana and 275 ponderosa pine were planted in the nursery, approximately 500 shrubs at the headquarters, and the remainder, consisting of 9,175 evergreens, 8,000 green ash, 10,000 caragana, and 10,000 shrubs of various kinds, were planted in the field. On one day the 22 men working on this project planted 8,500 trees and shrubs.

14 Species on Lower Souris Recorded for First Time.--Seven species of birds have been recorded for the first time this year as nesting on the Lower Souris Migratory Waterfowl Refuge, N. Dak., by C. J. Henry, assistant refuge manager. These are the Holboell's grebe, great blue heron, greater scaup, red-tailed hawk, piping plover, avocet, and common tern. During the 1936 season, when the marsh was first flooded, seven other species were recorded for the first time as nesting on the refuge, including the eared grebe, green-winged teal, redhead, ruddy duck, lesser scaup, alder flycatcher, and Nelson's sparrow.

W. P. A. Project Begun at Red Rock.--M. O. Steen, easement project administrator, reports that a W. P. A. project for improving the Red Rock Lakes Migratory Waterfowl Refuge, Mont., is now under way, and that 60 men have been assigned to this area to work in two monthly shifts of 30 men each. Because of the isolated location of this refuge, it will be necessary to establish a camp there to feed and house the workers.

W. P. A. Program Extended.--An additional W. P. A. allotment of \$391,538 has been approved for continuing the development work on refuges in North Dakota, South Dakota, Montana, Nebraska, Louisiana, Oklahoma, Wisconsin, Minnesota, Wyoming, and Michigan, up to December 31.

Moosehorn Area Made Federal Refuge.--On July 1, the President signed an Executive order creating the Moosehorn Migratory Bird Refuge, in Washington County, near Calais, Maine. This refuge, which is being established principally for the protection and preservation of the woodcock, is the chief landing place of these birds after they cross the Bay of Fundy. Not only are they abundant during migration, but they also nest in large numbers on the open ridges.

There are also many ruffed grouse and a few spruce grouse on the area. Deer are abundant, and moose are present in limited numbers in the swamps and heaths. Although they are never present in large numbers, they are often seen and their numbers seem to keep about the same. Under protection, they will undoubtedly multiply. Bears and bobcats are common, as also are cottontails, red foxes, minks, raccoons, and skunks.

Sentenced for Theft.--John N. Ball, associate refuge manager of the Mitchell, South Dakota office, reports that the man charged with the theft of Government property from the Lacreek Migratory Waterfowl Refuge, S. Dak., was found guilty and sentenced to two and one-half years' imprisonment in the Federal penitentiary at Leavenworth, Kans.

New Mexico Duck Nest Photographed.--The nest and eggs of the rare New Mexico duck (*Anas diazi novimexicana*) were photographed on the Bosque del Apache Migratory Waterfowl Refuge in Socorro County, N. Mex., on June 17 by Regional Director Don A. Gilchrist.

The nest, well lined with feathers from the bird's breast was in a hollow in the ground, among the stems of a Tornillo shrub or Mexican screw bean. The many limbs of the Tornillo spreading in all directions from the ground stood in a circle around the nest. It contained 9 eggs and was about 100 feet from the marsh.

To date, Phillip Saul, caretaker of the refuge, has succeeded in locating two nests containing eggs of the New Mexico duck. Each contained 9 eggs. The eggs in the first nest were observed May 1, but these were destroyed three days later by stray dogs. The ducks have been flushed from the nests on numerous occasions. Several pairs are quite tame, allowing one to get within a short distance of them. The New Mexico duck is one of the latest described, and it is most frequently seen on the Rio Grande River from Albuquerque, N. Mex., to El Paso, Tex.

Visit Bear River Refuge.--On June 23, approximately 200 Chamber of Commerce members of Salt Lake City and Brigham, Utah, visited the Bear River Migratory Bird Refuge. Superintendent Vanez T. Wilson conducted them over the refuge and they appeared favorably impressed with the bird life and the improvements made on the various units. Mr. Wilson in addressing the group told of the history and development of the refuge. State Fish and Game Commissioner Newell B. Cook also spoke and expressed his department's approval of the project and willingness to cooperate with the Federal Government. Presidents of the two Chambers of Commerce also made short speeches, expressing satisfaction in behalf of the visitors in what is being done to preserve wildlife and the cooperation between the Bureau and local sportsmen. Within the past few weeks two other large delegations have visited the refuge: A group of 70 Lion's Club members from Tremonton, Utah, and more than 100 members of the Sons of Utah Pioneers, who came from Salt Lake City, Logan, Ogden, Provo, and Brigham.

Good Water Supply.--Seth E. Low, junior refuge manager, of the Des Lacs and Lostwood Migratory Waterfowl Refuges, N. Dak., reports that the total precipitation for these refuges for April was 1.85 inches, and that all the lakes and ponds now have a good supply of water. This is particularly encouraging in view of the fact that the average precipitation for this region for the past 43 years has been but 0.98 inches.

Visits Southern Refuges.--Early in June, Amos B. Emery, in charge of the Section of Restoration and Development, inspected construction of headquarters buildings and E. C. W. projects completed or under way at the Okefenokee Refuge, Ga.; St. Marks Refuge, Fla.; Cape Romain Refuge, S. C.; and Savannah River Refuge, Ga. and S. C.

Naturalists Visit Okefenokee.---The Georgia Society of Naturalists made its annual trip to the Okefenokee Wildlife Refuge, May 13 to 16. Many members of the society, which was one of the strongest supporters of the plan to set aside the swamp as a wildlife refuge, have visited the area annually for some years, and have added greatly to the scientific knowledge of wildlife within its boundaries. Earle R. Greene, a Bureau employee stationed at the refuge, and a member of the society, was host to the visiting members.

Trees and Shrubs Planted.---C. J. Henry, assistant refuge manager of the Lower Souris Migratory Waterfowl Refuge, N. Dak., reports three Federal agencies furnished labor on the nursery project on this refuge during May. The agencies were the C. C. C., W. P. A., and N. Y. A. In addition to the seeds planted, 237,849 trees and shrubs also were set out.

Studies Erosion Problems.---Mstislav Egoroff, senior engineer of the Section of Restoration and Development, who has been making a special investigation of the beach erosion problems on the Bull Island unit of the Cape Romain Refuge, S. C., arrived in Washington June 1, for a week's conference with officials of the Division. Following the conference, he returned to South Carolina to continue his studies in an effort to develop methods for protecting the shores of the Jack Creek fresh-water pond from wave action.

Goldeneyes Nest on Waubay Refuge.---Watson E. Beed, junior refuge manager of the Waubay Migratory Waterfowl Refuge, S. Dak., reports that in examining 3 of the 20 nesting boxes placed on this refuge to attract tree-nesting ducks, he found 2 of them occupied by American goldeneyes sitting on eggs. Since this species rarely breeds in South Dakota Survey officials believe that the nesting boxes set out on the refuge are largely responsible for its presence there. The first record of its nesting in South Dakota was established about 1929.

Bombay Hook Refuge Established.---On June 25, the President signed an Executive order establishing the Bombay Hook Migratory Waterfowl Refuge, covering more than 12,000 acres, in Kent County, Delaware. The refuge is adjacent to Delaware Bay, east of Leipsic, between Woodland Beach and Mahon Lighthouse. It is on the Atlantic flyway used by the black duck on its migration from eastern Canada to the South and on the migration route used by pintails and green-winged teals coming from central and northwestern Canada and eastern Alaska. The refuge has not been under observation long enough to list the waterfowl breeding there, but observations made last summer show that black ducks, blue-winged teals, and wood ducks nest in the locality. Last fall and winter this area attracted 19 different species of waterfowl, and flocks of 3,000 to 15,000 snow geese were present from Thanksgiving Day to April 12.

Personnel.--Miss Esther A. King, formerly with the Agricultural Adjustment Administration, was transferred on June 5 to the Section of Restoration and Development as junior clerk-stenographer.

Joe Madsen, who has been detailed to the Washington office for the past two and one-half months, has been transferred to Thief Lake, Minn., as superintendent of the C. C. C. camp now working on the Mud Lake Migratory Waterfowl Refuge. Mr. Madsen was formerly in charge of the E. C. W. activities on the Valentine Refuge, Nebr.

Two marriages involving a change of name have taken place recently in the Division. Miss Barbara Walter, junior clerk-stenographer, became Mrs. Stanley Marmaduke, and Miss Beverly Gaylor, of the Section of Restoration and Development, became Mrs. Burnie Hallock on May 28.

Grant A. Solberg, junior administrative assistant, with headquarters at Bismarck, N. Dak., has been detailed to the Washington office for an indefinite period to assist in W. P. A. activities.

GAME MANAGEMENT

Game Management Agents and Game Preserves

Young Antelope Brought to Wichita Refuge.--Four antelope fawns, three males and a female, picked up in Cimarron County, Okla., and transported to the Wichita Mountains Wildlife Refuge for establishing a nucleus herd and supplying other areas in the State with antelope, are reported doing well and are thriving on cow's milk.

After an agreement between the Bureau and the State Game and Fish Commission for collecting and transferring antelope, Harry H. French, former superintendent of the Wichita Refuge; A. E. Gray, of Oklahoma City, district agent in charge of predator control; and R. D. Gray, State ranger, established a camp during May at Keyes. Using automobiles and saddle horses the three men first made an intensive survey of this antelope range. At one time there were large numbers of antelope in this section, but at present there are probably less than 30 that range on the narrow strip along the south side of the Cimarron River in the northeastern part of Cimarron County, about 10 miles north of Keyes.

The antelope were found ranging over an area embracing several ranches, about 15 miles long and 5 miles wide. They appeared to be in good condition and not very wild. Local ranchmen give these animals all the protection possible, and they are not hunted except by parties residing outside the State. Numerous coyotes in this region undoubtedly account for their small numbers. Small bands of 3 to 7 were observed, but as the fawning time approached the does withdrew to isolated spots. Finding the does was difficult because of dust storms and the large extent of the range. Rains late in May, however, made searching easier. Observations were made with field glasses when saddle horses were used, and at times the men were able to get rather close. The four fawns were picked up soon after birth and brought to camp. They accepted feeding by bottle and within a few days were each consuming 24 ounces of milk daily. Since there are not many antelope in the Cimarron section no further attempts were made to get more fawns. A hunter, it is announced, will be detailed to this area to reduce the coyote depredations.

The success of the expedition was due largely to the assistance of State Ranger Gray, who is well acquainted with this range and the people who live there. Lee Larrabee, Liberal, Kans., formerly a member of the Kansas Fish and Game Department, also spent a few days with the expedition and supplied helpful information.

Reports Waterfowl Increase.---George M. Riddick, game management agent, reports that during the past three years while following the flight of migratory waterfowl into the Northwestern States and to the Canadian border he has observed a noticeable increase each year over the previous season in their numbers. He reports that water conditions are much improved and that eastern Nebraska and North Dakota and South Dakota had plenty of water all along the path of the spring flight and that the birds made good use of it. He says that many potholes dry in other years are well filled with water. He also reports a noticeable increase in whistling swans.

On June 6, in investigating waterfowl conditions at Coeur d' Alene Lake in Idaho near the Canadian border, Mr. Riddick observed four snow geese and their young, several hatches of young Canada geese, and a large number of ducks and their young. Most of these broods appeared to be larger than of last year.

Along the Bear River and on the Bear River Migratory Bird Refuge in Utah, Mr. Riddick observed fairly large numbers of avocets and their young waddling over the mud flats. Another interesting sight at the Bear River Refuge that is especially interesting to visitors is the western grebe swimming along canals and channels with young perched on its back. When an automobile or person approaches the bird with young on its back dives and in a short time reappears with the young usually still on its back and apparently undisturbed by the trip under water.

Violation of Regulations Reduced.---The Wichita Mountains Wildlife Refuge, Okla., is being carefully patrolled to prevent violation of the refuge regulations. Although observance was poor at the beginning of May, by the end of the month it was reported to be good. Most of the violations resulted from motorists exceeding the prescribed speed limit. During May, motor cars killed 2 wild turkeys, 16 rabbits, and 2 prairie dogs in the refuge. It is estimated that approximately 9,000 persons visited the refuge during May.

Fish Transplanted.---George E. Mushbach, superintendent of the Wichita Mountains Wildlife Refuge, reports that it was necessary recently to drain Lake Thomas, a large part of which is within the boundaries of the refuge, and that on May 25 workmen from the Oklahoma State Fish Hatchery at Medicine Park began seining fish from the shallow water and transplanting them to various refuge lakes with the aid of refuge rangers and a C. C. C. crew. A total of 166 barrels of fish estimated to contain about 83,000, including bullhead catfish, green sunfish, ring perch, crappie, and other perch were transplanted.

Reports Increase in Geese.--Wesley D. Parker, in charge of Sullys Hill Game Preserve, N. Dak., reports that many geese passed over that region during the spring, apparently more than last year, but no increase in the number of ducks has been noted, only the scaups, appearing to be holding their own. There were 2,985 visitors to the preserve during May.

Wife of Regional Director Dies.--Mrs. W. R. Rush, wife of the regional director at Portland, Oreg., died suddenly on June 3. Funeral services were held at Helena, Mont.

Law Enforcement

26 Cases Successfully Terminated.--Twenty-six Migratory Bird Treaty Act cases were successfully terminated before Judge Colman in the Federal Court at Baltimore, Md., on June 15. Two defendants, one charged with the possession of ducks in close season and shipment in interstate commerce, and the other with the sale of wild ducks, were fined \$500 each and costs. Three other cases of possessing trapped ducks in close season were disposed of, one with a fine of \$50 and costs of \$20.05, and the other two with \$50 fines.

One case was nol prossed and the others disposed of were as follows: Gun not plugged, 5 fines of \$5 each and costs and 1 fine of \$1; gun not plugged and no hunting stamp, 4 fines of \$5 each and costs and 1 fine of \$20 and costs; hunting after 4 p. m., 2 fines of \$25 each and costs and 1 fine of \$10; hunting before 7 a. m., 2 fines of \$2 each; hunting over live decoys, 2 fines of \$5 each and costs; hunting ducks by means of bait, 2 fines of \$10 each and costs; possession of a swan, 1 fine of \$5 and costs.

Three other cases were disposed of in the same court on June 17 as follows: Hunting ducks after 4 p. m. and with unplugged gun, \$25 and costs; no plug in gun, \$10 and costs; and hunting ducks after 4 p. m., without duck stamp, found not guilty.

Fur Shipper Fined.--Information obtained by a Bureau agent and a U. S. deputy game warden in Missouri, in connection with an alleged illegal shipment of furs, resulted in the successful prosecution of the shipper during April in a North Dakota State Court. He was fined \$100 and given a 30-day suspended jail sentence.

Arrest Bird Trappers.--Four persons trapping painted buntings alive through the use of live bird decoys were arrested by a Federal deputy agent in St. Charles Parish, La., late in May, and required to furnish bond for appearance in Federal court. These arrests are believed to be the first to be made under provisions of the recent treaty with Mexico covering migratory birds. The wild birds that had been trapped were seized and liberated, and the live decoy birds and cages were seized.

Three Missouri Hunters Fined.--Three hunters arraigned in Federal Court at Hannibal, Mo., on May 25, on charges of hunting wild ducks after 4 p. m., were fined \$10 each upon pleading guilty.

Killed 6 Ducks.--Charged with killing 6 wild ducks during April in Monona County, Iowa, a hunter pleaded guilty and was sentenced to serve two days in jail when arraigned in Federal Court at Sioux City, Iowa, on May 20. Unable to furnish bond, the defendant had been held 12 days in jail before arraignment.

Alaska Law Enforcement

Alaska Violations Successfully Prosecuted.--During the quarter ending July 1, 76 violations were reported by the Alaska Game Commission. The total violations for the fiscal year ending June 30 were far in excess of those of any preceding year, totaling 329 as against 120 for the previous year and 188 for the previously highest year, 1932. In his report Frank DuFresne, executive officer of the Commission, says that in spite of the large number of violators convicted during the past year, the Commission is receiving more reports than ever from interested citizens, calling attention to irregularities within their districts and urging greater patrol service. From the attitude taken by citizens, it is apparent that public opinion favors the conviction of game law violators.

During the quarter just ended, jail sentences imposed totaled 1,400 days, and 42 firearms and 78 traps used by violators were seized. A total of 152 skins were seized, including 72 beaver, 26 fox, and 44 mink. Aliens were concerned in 12 cases, and 62 other cases involved game and fur. The estimated value of seized articles was \$2,375 and the total amount of fines was \$2,440.

Executive Officer Lectures.--Early in April Executive Officer DuFresne went to Ketchikan and spoke at a theatre before an audience of 900 persons. The program was sponsored by the Alaska Sportsmen's Association of Ketchikan and featured a series of wildlife pictures furnished by the Bureau. On his way back to Juneau Mr. DuFresne also spoke before a trappers' organization at Wrangell, and at a gathering in a theatre at Petersburg, where the Bureau pictures were again shown to a large audience. On April 19, he went to Seattle, and from there to Portland and San Francisco in company with Warden Homer W. Jewell. The purpose of these visits was to effect ways and means of preventing contraband beaver skins from Alaska entering Oregon and California.

Wildlife Killed by Flood.--Alaska Game Warden Sam White submitted to the Alaska Game Commission the following report on June 27, of an unusual ice break-up of the Yukon River this spring:

"The high flood waters of the break-up did not cease with the clearing of the rivers of ice. At this writing they still prevail on the lower Yukon. Rabbits, which were quite plentiful throughout the interior, have been wiped out in the flooded areas, as have been many other animals both large and small. The water stayed up so long that no animal no matter how large and powerful, could survive or force its way to the distant hills unless it was near them in the beginning. In many places the flood waters reached back 50 miles from the river banks, and flat lands formerly above water were covered to a depth of 30 feet.

"Many drowned moose were reported. One recently floated by Galena, and Kiyuh natives saw one standing in water to its flanks and bellowing-- there was no place for miles around where the ground was above water; the natives had been hunting for a camp site for some time. As the water receded rabbits were seen hanging on bushes and logs where they had sought refuge. Several drowned foxes were seen by the natives, and one live fox was taken off a log by Kiyuk natives, and wrapped in a blanket while they searched in vain for a high bank upon which to release it. Later the animal died.

"All natives and trappers and also traders agree that untold damage has resulted in the flats to both large and small game. Breeding stock will be available in the nearby hills, but considerable time will elapse before the flooded areas can be restocked."

Fur Shipments Checked.---Warden Homer Jewell's work in checking fur shipments arriving at Seattle, Portland, and San Francisco, has been of great value in furnishing information leading to the apprehension of illegal shippers in Alaska. On his trip to Portland and San Francisco, he established valuable contacts with Regional Director William Rush and Game Management Agents Gerow, Worcester, and Elder, and has worked closely with Game Management Agent Ransom in and near Seattle.

Alien Cases Prosecuted.---Warden Douglas Gray made several patrol trips out of Juneau during the quarter and arrested a number of violators who were later convicted in the Juneau court. Two alien cases handled by him resulted in fines of \$250 each and forfeiture of guns. An unusual case in this district during the quarter was the conviction of an alien, formerly a United States commissioner and a special deputy warden for the Game Commission. Information resulting in conviction of this man was obtained by the commission and culminated in the forfeiture of a gun and a suspended jail sentence of six months.

Take Motion Picture of Wildlife.---The Alaska Game Commission is cooperating this summer and fall with the Alaska branch of the Forest Service in making a wildlife motion picture. Joseph Yolo, of Yakima, Wash., chief photographer, is being assisted by wardens and rangers in whose district he works. The picture will be of the "travelogue" type, beginning with the departure of a steamer from Seattle, followed by a few typical scenes along the famous Inside Passage to Juneau. The first actual wildlife "shots" were made on Chichagof Island in May and early June, showing brown bears emerging on the snow fields after winter hibernation. The location then shifts to Kenai Peninsula, where moose and mountain sheep during the calving and lambing season were photographed.

Later in July, brown bears catching salmon from the spawning streams in southeastern Alaska were to be photographed. In August the party will travel to the upper Yukon River section between Circle and Eagle, to take pictures of the caribou migration to that region. This will be followed by a short stay in the Mount McKinley National Park area for views of bighorns, grizzly bears, foxes, ptarmigan, and other wildlife.

Upon returning to the Kenai late in September, the party plans to take pictures of Kenai moose congregating on the ridges during the mating season. To give a proper perspective to year-round conditions

in Alaska, it is also planned to show winter scenes of the Kenai moose postholing through shoulder-deep snow during late winter; also of the small Sitkan deer of Southeastern Alaska banded along the beaches, to which they are forced each winter by heavy snowfalls.

Patrol Boat Work.--Warden Selfridge arrived in Juneau on April 10, aboard the Grizzly Bear and made several patrols from this port during the month. On May 15 the Grizzly Bear furnished transportation for a motion picture photographer and Forest Ranger J. P. Williams on a bear picture-taking trip to Chichagof Island. Returning to Juneau on June 10, the Grizzly Bear remained at this port until June 28. Recently it returned to Ketchikan, where it will undergo a small overhaul job before proceeding into the field again with Warden Selfridge.

The Seal left Juneau on June 12 with Assistant Executive Officer Rhode and Warden Gallwas for patrol duty along the Alaska Peninsula and Bristol Bay. Forest Ranger J. P. Williams and Joseph Yolo, a motion picture photographer, also travelled on the Seal as far as Seward, and from there they were taken to Skilak Lake, on Kenai Peninsula, by Warden Gallwas.

Continue Study of Aleutian Islands.--On May 4 the Brown Bear, in command of Captain Sellevold, left Seattle with a party headed by O. J. Murie and including John Steenis, of Washington, and Dr. Victor B. Sheffer, of Olympia, Wash., on a bird study expedition to the Aleutian Islands. The party stopped at Ketchikan to unload four young elk, and at Petersburg, Juneau, Cordova, Valdez, and Seward to unload freight from Seattle for game wardens. The Brown Bear then proceeded almost directly to Attu Island, arriving there on June 10. Warden Douglas Gray, of the Alaska Game Commission, accompanied the party from Juneau, and on June 30, Captain Sellevold wired the Commission that the Brown Bear was at Rat Island.

Fined \$400.--A non-resident alien recently was apprehended by the Alaska Game Commission and successfully prosecuted for taking game and fur in Alaska without a special alien license. The commissioner's court in which the violator was tried imposed a fine of \$400 and a jail sentence of six months.

Predator and Rodent Control

Cooperative Funds Made Available.--Several State legislatures have appropriated cooperative funds for the 1938 fiscal year, totaling \$128,600 for rodent control and \$319,785 for predator control. These figures include a \$15,000 revolving fund appropriated by the Territorial Legislature of Hawaii for purchasing supplies and materials and defraying the cost of bait production. Bait products are to be resold to co-operators at cost. The Alaskan Legislature appropriated \$10,000 for predator control and provided a \$5,000 revolving fund for purchasing supplies.

In addition, it is estimated that approximately \$475,977 will be available from counties in the various States and other sources for rodent control and \$258,440 for predator control. The sum of \$25,300 was budgeted by Oregon counties for cooperation with the Survey in predator control during the calendar year for 1937. In addition, the sum of \$15,000 was apportioned for this work by the State Department of Agriculture, and \$9,850 by the State Game Commission.

Demonstrate Value of Rodent Control.---Progress in rodent control in Region 5--Mississippi, Alabama, Louisiana, Arkansas, and Tennessee--is reported in District Agent Robert E. Deen's third quarterly report. Fourteen demonstration meetings to show farmers proper methods of pocket-gopher control were held in Arkansas and Louisiana. In each locality cooperative associations sponsored either by the Soil Conservation Service or county agents' offices had been set up.

Excellent results also were reported in carrying on rat-control campaigns, for which funds were provided by city governments, local merchants, and others. Rabbit control in relation to slash pine seedlings and reforestation was conducted in cooperation with the Forest Service on the Kisatchie National Forest. The total amount of cooperative funds for this work was \$13,638 as against \$915.07 Federal funds.

Coyote Kills 15 Goats.---District Agent Roy Fugate, of Portland, Oreg., reports an unusual incident in which an attempt by farmers to keep coyotes out of a goat pasture unwittingly led to the killing of 15 goats. Hunter John Ulam, who was called to capture the coyote, found that the owners had tied rags about the 160-acre pasture fence to keep coyotes away, but at that time a coyote was already in the pasture. Each time the animal tried to dig out under the fence it was apparently frightened away, and during its stay in the pasture it managed to kill the goats.

Boston Conducts Rat Campaign.---District Agent E. M. Mills, of Amherst, Mass., reports that a successful educational rat-control campaign was recently conducted in Boston, Mass., sponsored by the City Health Department in cooperation with other city departments, trade, and civic organizations. Radio talks were given by the acting mayor, by Dr. Henry F. R. Watts, of the Health Commission of Boston; by Dr. Hans Zinsser, of the Harvard Medical School; and by Dr. Warner, medical officer in charge of the U. S. Quarantine Station at Boston. During the campaign, 2,600 posters and 63,000 circulars were distributed. It is planned to follow this campaign with work that will insure permanent rat control in the city.

New Plague Outbreak.--A new outbreak of plague in Oregon has been reported by the U. S. Public Health Service. Plague was found in 56 fleas collected from 36 Oregon ground squirrels shot near the highway 12 to 14 miles north of Lakeview, Oreg. This new outbreak is the third in Lake County, Oreg., the other two being in Bullard Canyon 2 miles east of Lakeview, and in Drake Flat on the Lakeview-Plush road. Tularemia was also found about the same time in a ground squirrel. shot on the land of the Crater Lake Lumber Company, 6 miles southwest of Beatty, Oreg.

Coyotes Untiring Parents.--How far will a coyote go for food and carry food to its young in the den? Federal Hunter Paul Kemble, of the Nevada district, reports finding a den in his district near which was a fresh leg of lamb that had been brought there by the adult coyotes. He said that the nearest sheep were at least 8 miles away from the den.

Organize A. A. A. Prairie Dog Campaign.--Under the leadership of County Agent Parker, ranchers in McKinley County, N. Mex., have organized the first A. A. A. county-wide prairie dog campaign in that State. Co-operating landowners have advanced 3 cents per acre of infested land with which to buy poison materials and other supplies. The Bureau, which has general direction of the entire program, has furnished considerable working equipment and supplies. At present there are 5 large crews at work as well as a large number of small crews and individuals.

Railroad Aids in Rodent Control.--The Washington district office reports that during May a large railroad company purchased 1,900 pounds of prepared bait for use along its right-of-way in that vicinity. Most of the bait was distributed in Spokane and Whitman Counties for the control of Columbia ground squirrels.

Recovers from Tularemia.--Geo. E. Holman, district agent in the Nevada district, writes that Assistant District Agent Norman Gillham became ill early in June with tularemia and was under hospital care. He left the hospital late in the month and is now back at work.

Landon on Washington Detail.--C. R. Landon, district agent in charge of predator and rodent control operations in Texas, is in the Washington office on a 2-months' detail. He is studying the work of this Section and will return to his official station about August 1.

Finds Coyote Den With 19 Puppies.--Late in April, Hunter Vernon Slack in searching for coyote dens near Cedar City, Utah, found one containing 19 puppies. These were viewed by a large number of sheep men and by business and professional men of the community. Mr. Slack later trapped the mother coyote near the den, and then remained in the area hoping to see whether another female coyote was using the den, but was unable to find any traces of it.

Hold Rabbit Drives on Shelterbelt.--With the 1937 plantings added to the shelterbelt, the Bureau's rodent-control activities now extend along 370 miles of shelterbelt plantings in Nebraska, reports Junior District Agent Noble E. Buell, of the Wyoming-Nebraska district. As the average shelterbelt strip owner prefers to shoot rabbits instead of poisoning them, several hunting clubs have been organized. Approximately 150 farmers formed a club at Stapleton, Nebr., which schedules regular hunts. Clubs also have been organized at Alliance, Elgin, and Page, Nebr., and Government ammunition is distributed to those that hunt on shelterbelt areas. The Survey usually turns over a thousand rounds of ammunition at a time to the hunting club officials to supplement the ammunition that the farmers use. One shell is given to a hunter for each rabbit that he kills and brings to the pick-up truck. Although the use of poisoned bait might prove more effective and less expensive, it is felt that shooting rabbits on a cooperative basis is of more permanent value because of the interest it creates among shelterbelt strip owners.

THE SURVEY

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Nos. 8-9

GENERAL NOTES

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U. S. Department of Agriculture

Attends Mexican Meeting.—Mexico is becoming more and more alert to the value of her wildlife resources and is taking further steps to insure their conservation, reports Dr. Gabrielson. The Chief, in company with F. C. Lincoln, in charge of the Section of Distribution and Migration of Birds, and Regional Director Donald A. Gilchrist, of Albuquerque, N. Mex., attended the meeting of the International Association of Game, Fish, and Conservation Commissioners, at Mexico City, during the week of August 23. Dr. Gabrielson spoke on "International Aspects of Wildlife Problems", pointing out that preserving the flight of migratory birds is "truly an international problem, one which cannot be solved by any one nation independently of the others, and one which requires a continent-wide vision and a continent-wide understanding of the resource and close cooperative work on the part of all three nations. . . ." Mr. Lincoln presented a paper on the condition of migratory waterfowl in the different flyways. The Mexican officials appeared to be greatly impressed with the detailed studies the Survey is making of migratory birds and expressed the belief that these studies would be of material help in their own program. The conference proceedings were reported in detail by the Mexican press and radio stations.

Before going to Mexico City, the Chief and Mr. Lincoln attended the meeting of the Western Association of Game and Fish Commissioners at Denver, Colo., on August 16 to 18. Dr. Gabrielson in an address there explained the results of continued waterfowl investigations, and Mr. Lincoln told of the assignment of trained biologists to investigate conditions affecting migratory waterfowl and other birds in each of the four major flyways. Dr. George B. Saunders, a flyway biologist, who had just returned from his investigations in Alberta and Saskatchewan, was introduced and explained the results of his studies.

Upon leaving the Denver meeting, Dr. Gabrielson and Mr. Lincoln traveled by train to Albuquerque, N. Mex., where they were joined by Regional Director Gilchrist. From there the party traveled to Mexico City by automobile, and after attending the Mexico City conference, Dr. Gabrielson and Mr. Lincoln returned to Texas, where they inspected the newly acquired Aransas Migratory Waterfowl Refuge, near Corpus Christi. Regional Director Gilchrist left the party at Orange, Tex., to return to his headquarters. Large numbers of shorebirds, herons, and a goodly number of southern mottled ducks were observed on the Aransas refuge. The newly acquired Sabine Migratory Waterfowl Refuge in Cameron Parish, La., also was visited. This refuge is in a region where large numbers of geese concentrate during winter, and with proper development it should attract large numbers of ducks also. Traveling northward from this refuge, in company with Regional Director

Roy Moore, the party made a short visit to Catahoula Lake in Louisiana, and later inspected the White River Refuge in Arkansas, in company with Superintendent Hugh Terhune and other refuge personnel.

Speaks at Dedication of Baird Biology Building.--In an address on "Baird's Continuing Influence on Biological Research", Dr. Gabrielson paid tribute to Spencer Fullerton Baird and Dickinson College, the noted scientist's alma mater, at Carlisle, Pa., on September 16, when the College's new Baird Biology Building was dedicated. In addition to discussing Baird's attainments and influence, Dr. Gabrielson spoke of the number of Dickinson alumni who have taken part in the work of the Federal Government. "I have had the pleasure myself," he said, "of working with such a man--Wm. H. Cheesman, --who as editor of the Biological Survey has for more than twenty years had much to do with maintaining the excellence of our publications. Through Mr. Cheesman I have come to know at first hand the sort of alumni that Dickinson has been sending into the world and also something of your history and traditions."

Arriving in Harrisburg on the day of the dedication, the Chief found that the train he had planned to take from there to Carlisle had been taken off the schedule a few days previously. With the assistance of Seth Gordon, of the Pennsylvania Game Commission, who provided an automobile and driver, he did, however, make his appointment a half hour before he was scheduled to appear on the program.

Following the address at Carlisle, Dr. Gabrielson returned to Harrisburg and from there proceeded to Philadelphia for conferences on various matters.

Named Bureau Representatives on Land Use.--Dr. Gabrielson has been appointed a member, and Mr. Salyer, chief of the Migratory Waterfowl Division, an alternate member, of the Department's Liaison Board, composed of representatives of various Bureaus, who will advise with M. S. Eisenhower, recently appointed the Department's coordinator of land use planning, on matters of basic land use policy. Other members of the board are: Dr. F. F. Elliott, Agricultural Adjustment Administration; Dr. A. G. Black, Bureau of Agricultural Economics; Dr. Chas. Kellogg, Bureau of Chemistry and Soils; Dr. C. W. Warburton, Extension Service; Earl Clapp, Forest Service; L. S. Tuttle, Bureau of Public Roads; Milo R. Perkins, Farm Security Administration; and D. S. Myer, Soil Conservation Service.

Under Secretary Visits Refuge.--Under Secretary of Agriculture M. L. Wilson and a party of three visited the Tamarac Migratory Waterfowl Refuge, Minn., on August 25. Philip Nelson, Deputy game management agent stationed at Detroit Lakes, Minn., conducted the party over much of the refuge, showing them Tamarac Lake with its heavy concentration of ducks, wildrice fields, and other points of interest. He reports that the Under Secretary was impressed by the fine stands of spruce, oak, and elm on the refuge and in the prospective harvest of at least 2,000 pounds of wildrice for planting on other waterfowl areas.

Finnish Game Official Visits Bureau.--Early in August, Dr. V. M. Klemola, chief game inspector, Ministry of Agriculture of Finland, visited the Survey and spent several days with Bureau officials in reviewing accomplishments in wildlife research, methods of game management, and records of experimental work with fur animals. Arrangements were also made with the Extension Service for showing Dr. Klemola a number of the Bureau's motion pictures. Before coming to Washington, he spent July 5 and 6, at the Fur Animal Experiment Station, Saratoga Springs, N. Y. He is especially interested in this work as he will be in charge of three new government fur experiment stations in his country.

Former Chief Honored.--S. A. F. Affairs, organ of the Society of American Foresters, prints in its August 1937 issue the following letter to former Chief Paul G. Redington, from the Society's President, H. H. Chapman: "It gives me great pleasure to report to you that the Council of the Society of American Foresters has voted you an honorary life member with full privileges of membership including receipt of Society publications. Your long and distinguished service both to the Society, of which you were President for 2 years, and to forestry as a member of the Forest Service, and Regional Forester in Regions 3 and 5, and your contributions to wildlife management as Chief of the U. S. Biological Survey, more than justify this small measure of appreciation from the members of your profession."

New Regional System Functioning.--Practically all field activities of the Survey are now being conducted on a regional basis, following the reorganization of the regional system this summer. In recent years these field activities have increased greatly as the result of the nation-wide awakening to the need of conserving wildlife resources and subsequent greater activity by the Bureau in the restoration of these resources.

Under the new plan there are 10 regions, each headed by a regional director. These directors are subject to instructions directly from the Chief of the Bureau and the heads of divisions and sections in Washington. The new system, it is explained, is bringing about a more efficient coordination and administration of field activities and is engendering a group spirit and solidarity.

The regions, and the names and present headquarters of the regional directors, are as follows:

- Region 1, Pacific; Washington, Oregon, California, and Nevada. Wm. M. Rush, 404 U. S. Court House, Portland, Oreg.
- Region 2, Mountain; Montana, Idaho, Wyoming, Utah, and Colorado. Leo L. Laythe, 576 Custom House, Denver, Colo.
- Region 3, Southwestern; Arizona, New Mexico, Oklahoma, and Texas. Donald A. Gilchrist, 404 Federal Building (P. O. Box 534), Albuquerque, N. Mex.
- Region 4, West Central; Minnesota, Iowa, and Missouri. George Tonkin, 207A Federal Office Building, Des Moines, Iowa.

Region 5, Southern; Arkansas, Louisiana, Tennessee, Mississippi, and Alabama. Roy Moore, (P. O. Box 15), State College, Miss.

Region 6, East Central; Wisconsin, Michigan, Illinois, Indiana, Ohio, Kentucky, and West Virginia. Daniel H. Janzen, Michigan State College, East Lansing, Mich.

Region 7, Southeastern; Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Georgia, and Florida. James Silver, 1013 Glenn Building, Atlanta, Ga.

Region 8, Northeastern; Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and Delaware. Bertrand E. Smith, 309 Federal Building, Portland, Maine.

Region 9, Plains; Medicine Lake Migratory Waterfowl Refuge, Mont.; North Dakota, South Dakota, Nebraska, and Kansas. (Acting Director) Burnie Maurek, Post Office Building (P. O. Box 1269), Omaha, Nebr.

Region 10, Alaska, Frank Dufresne, Alaska Game Commission, (P. O. Box 2021), Juneau, Alaska.

Bureau Offices Moved.--Practically all of the Bureau's Washington offices are now housed in the first, second, third, and fourth floors in or near the third wing of the Department's South Building. Most of the offices, formerly in or near the fourth and fifth wings, were moved during June and July. Offices of a number of other Bureaus in the South Building have also been changed. The Bureau's Section of Food Habits, located in Temporary Building F on the Mall for the past 15 years, is now on the first floor in the third wing in the South Building, adjacent to other sections of the Division of Wildlife Research. New laboratory equipment for this section is to be installed within a few months. The mammal laboratories of the Section of Wildlife Surveys remain in the U. S. National Museum, and the office of Charles H. M. Barrett, Bureau taxidermist, in the building at Sixth Street and Independence Avenue.

Darling Visits Refuge.--On August 31, J. N. Darling, former Chief of the Bureau, visited the Valentine Migratory Waterfowl Refuge, Nebr.

ADMINISTRATION

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" (Admin. F. O.) series:

- No. 189. Official telephones in private residences. (June 15).
- No. 190. Changes in Procurement Division Contracts. (June 18).
- No. 191. Observance of laws and regulations. (June 21.)
- No. 171. Supplement No. 1. Automobile liability insurance. (June 24.)
- No. 192. Contracts for service-station deliveries of gasoline and lubricating oil for the period ending June 30, 1938. (June 29.)
- No. 178. Supplement No. 1. Salaries of hunters and rodent control leaders hired under field allotments. (June 29.)
- No. 21. Revised. Instructions in solicitation and acceptance of bids. (June 30.)

- No. 193. Procurement of repair parts for construction and road-building machinery for the period July 1, 1937, to November 30, 1937. (July 2.)
- No. 122. Amendment No. 2. Application of certain provisions of permanent leave regulations to employees carried under emergency appropriations and under the \$6,000,000 (NIR) appropriation. (July 9.)
- No. 192. Amendment No. 1. Contracts for service-station deliveries of gasoline and lubricating oil for the period ending June 30, 1938. (July 10.)
- No. 194. Procurement of dynamite, blasting powder and exploders for the period ending June 30, 1938. (July 13.)
- No. 195. Orders for supplies from Central Supply Section Stock Catalog. (July 14.)
- No. 100. Amendment No. 4. Requirement to purchase materials from Federal Prison Industries, Inc., applicable to CCC activities effective July 1, 1937. (July 14.)
- No. 196. Procurement of repair parts for air compressors during the period June 16, 1937, to November 30, 1937. (July 15.)
- No. 197. Procurement of repair parts and accessories for motor vehicles, including tractors, for the period July 1 to December 31, 1937. (July 21.)
- No. 198. Vouchers for repairs to Government-owned equipment within the contract warranty period. (July 21.)
- No. 199. Information required on vouchers covering the purchase of property. (July 21.)
- No. 200. Changes in Procurement Division Contracts. (July 26.)
- No. 197. Amendment No. 1. Procurement of repair parts and accessories for motor vehicles, including tractors, for the period July 1 to December 31, 1937. (Aug. 4.)
- No. 201. Granting of leave. (August 9.)
- No. 47. Amendment No. 1. Personal liability for injuries and property damage; automobile insurance available to operators of Government-owned or rented automobiles, trucks, or tractors. (Aug. 9.)
- No. 202. Holding of examinations by District Managers of the Civil Service Commission for the position of Laborer-Patrolman (General, Range Rider, and Boatman), at entrance salary of CU-3, \$1.200 per annum. (August 10.)
- No. 203. Requisitions for accountable documents. (August 12.)
- No. 204. Procurement of Fiscal Year 1938 lubricating oil requirements under Navy Department contracts. (August 16.)
- No. 205. Changes in Procurement Division Contracts. (August 17.)
- No. 206. Procurement Division Contracts. (August 27.)
- No. 188. Amendment No. 1. Toll charges for passage over San Francisco-Oakland Bay Bridge. (August 27.)
- No. 195. Amendment No. 1. Orders for supplies from Central Supply Section Stock Catalog. (August 30.)
- No. 207. Patents for inventions by employees. (August 31.)
- No. 201. Amendment No. 1. Granting of leave--amendment to previous memorandum. (August 31.)

The following memoranda to field offices have been issued in "Contracts" series:

- No. 1. Procurement of repair parts and accessories for motor vehicles, including tractors, for the period July 1 to December 31, 1937. (September 2.)
- No. 2. Procurement of incandescent electric lamps for the period ending August 31, 1938. (September 2.)

PUBLIC RELATIONS

Attends Rifle Matches.--During the first week in September, Col. Sheldon attended the national rifle matches at Camp Perry, Ohio. While there he conferred with numbers of the sportsmen who attend this annual event and gave out information concerning the progress and objectives of the Survey in its wildlife restoration program. The meeting was attended by more than 7,000 persons who came from all sections of the United States and its territories. Those present who were interested in the migratory game bird situation gave evidence of their confidence in the soundness of the efforts being made by the Survey. Public opinion on this occasion was distinctly more favorable toward the Bureau than in preceding years.

Broadcasts Continue.--Four talks touching on various phases of the waterfowl program and a discussion of Miss May T. Cooke's studies of the speed of bird flight constituted the Biological Survey's contributions broadcast by Howard Zahniser on Conservation Day programs of the National Farm and Home Hour in August and September.

Discussing "The 1937 Federal Hunting Regulations" on August 6, Mr. Zahniser told of the rules then recently approved and their purposes. "Mighty important news," he said, "if you hunt migratory game birds. Suppose you don't? Well, still mighty important news. They're your birds, too. It's your government. How can a fellow be an intelligent citizen if he doesn't know what his government is doing for his birds?"

Describing the importance of the Red Rock Lakes Migratory Waterfowl Refuge, Mr. Zahniser, on August 13, centered attention on the trumpeter swan and its increase this year, telling "a story about a magnificent bird--a tragic story but, strangely enough," he said, "it may be a tragic story with a happy ending, the sort of happy ending in which the characters after being buffeted by almost insuperable hardships find that, at the last, things might have been a lot worse." The broadcast on September 10 was a travel talk on "The Bear River Bird Refuge", including historical facts, notes about the wide distribution and large numbers of birds breeding on the refuge, and descriptions on restoration and development operations, particularly those concerned with botulism. On August 27, Mr. Zahniser had reviewed the Senate Committee Print, "Wildlife and the Land: A story of Regeneration", in a talk entitled "A Little Booklet". The broadcast resulted in more than 2,100 requests for the publication.

In his talk September 24 on "Birds Fly Fast--But How Fast?" Mr. Zahniser told of Miss Cooke's interest in the study of flight speeds and discussed a few of her records. In conclusion he said: "Well, I can't tell any more records today. Sorry, too, because they're all interesting. Everything about birds is interesting. Fine thing we have the birds, and it's worth a lot to keep them. That's the reason the U. S. Biological Survey--the nation's and your wildlife service--is working for bird conservation. That's the reason I am trying to show you how interesting this work is. It needs your support."

Copies of the talks as mimeographed are listed on page 158, of this issue of THE SURVEY.

Confer in Richmond.--On September 8, Mr. Zahniser, in company with George H. Cook, of the Department's Division of Exhibits, conferred in Richmond with representatives of the Virginia State Fair and the State Commission of Game and Inland Fisheries, in connection with plans for exhibits of the State Fair this year. Plans were made by State Game Commissioner M. D. Hart and Mr. Zahniser for another cooperative wildlife exhibit.

Exhibits at Antietam Celebration.--Six Bureau exhibits were on display from September 4 to 19, at the Hagerstown, Md., fair grounds during the celebration commemorating the 75th anniversary of the Battle of Antietam. The exhibits, "Game Birds No Longer Abundant", "Conservation of Waterfowl", "Farmers Make Game Replacement a Farm Crop", "White-tailed Deer in Eastern States", "Hunter's Cabin", and "Fur Bearers in the Wild" were shown in the wildlife building. Thousands of persons visited the wildlife building daily during the celebration, including several groups of school children and their teachers. Lisle Morrison, collaborator of the Bureau in exhibit work, was in charge of the exhibits. Arthur Susott, of the Bureau, and Leo Monroe, of the Department's Division of Exhibits, assisted in setting up the exhibits and after the celebration in dismantling them.

On September 23, Mr. Morrison, in company with Mr. Monroe, went to Richmond, Va., where he supervised the setting up of two Bureau exhibits, one on shore birds and the other on winter feeding of birds, and several Department exhibits for display in connection with the Virginia State Fair, during the week of September 27. He remained with the exhibits during the fair, explaining the work of the Bureau and the Department to visitors and distributing publications of the Department.

Addresses Rotarians.--On August 31, Howard Zahniser told members of the Bethesda-Chevy Chase Rotary Club about recent developments in wildlife conservation. He spoke at a luncheon in a Chevy Chase country club.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Crow-waterfowl relationships: Based on preliminary studies on Canadian breeding grounds. By E. R. Kalmbach, Senior Biologist, Section of Food Habits, Division of Wildlife Research. Circular No. 433, 36 pp. June 1937. Received July 16.
- Diseases of fur animals. By J. E. Shillinger, Senior Veterinarian, In Charge, Section of Disease Control, Division of Wildlife Research. Farmers' Bulletin No. 1777, 22 pp. July 1937. Received Aug. 17.
- Diseases of upland game birds. By J. E. Shillinger, Senior Veterinarian, In Charge, and L. C. Morley, Associate Veterinarian, Section of Disease Control, Division of Wildlife Research. Farmers' Bulletin No. 1781, 34 pp. August 1937. Received Sept. 21.
- Regulations relating to migratory birds and certain game mammals; 1937. Service and Regulatory announcements--B. S. 88, 10 pp. Aug. 1937. Received Aug. 24.
- Seasons for migratory game birds, 1937-38. Poster No. 60 (Bi) 1 p. Aug. 1937. Received Sept. 10.
- Hunters--attention: Buy a stamp before you shoot. Poster No. 59 (Bi) 1 p. July 1, 1937. Received Aug. 30.
- The breeding of fur animals. By F. G. Ashbrook, Principal Biologist, In Charge, Section of Fur Resources, Division of Wildlife Research. Yearbook of Agriculture, 1937, pp. 1379-1395. Received Sept. 16.
- Status of eelgrass (*Zostera marina*) on the north Atlantic coast, January 1937. By J. J. Lynch, Junior Biologist, and Clarence Cottam, Senior Biologist, In Charge, Section of Food Habits, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-94, 15 pp. July 1937. Received Aug. 10.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Aldous, C. M. Eastern crows nesting on or near the ground. Auk 54: 393-394, illus. July 1937.
- Bassett, C. F. Results of feeding frozen fish to minks. Canad. Silver Fox & Fur 3 (5): 22-23. May 1937. Also in: Amer. Fur Breeder 9 (12): 26, 28, 29, illus., June 1937; Fur Trade Jour. Canada 14 (11): 8, 20-22, illus., July 1937; and Natl. Fur News, June 1937, pp. 25-27.
- Tankage and livermeal in the summer feeding of weaned fox pups. Fur of Canada 2 (9): 16. May 1937. Also in: Black Fox Mag. 21 (2): 43-44, June 1937; Fur Jour. 3 (8): 4-5, June 1937; and Brit. Fur Farmer, June 1937, pp. 43-44.
- Summer feeding of adult foxes. Black Fox Mag. 21 (3): 5-6, illus. July 1937. Also in: Fur Trade Jour. Canada 14 (11): 9, 17-18, illus., July 1937; and Natl. Fur News, July 1937, pp. 7, 22-23.
- Cottam, C. American egret and black-bellied plover in Delaware in winter. Auk 54: 382. July 1937.
- Kelso, L. (With Estelle H. Kelso). A Costa Rican race of Jardine's pygmy owl. Auk 54: 304. July 1937.
- Lincoln, F. C. Eastern mourning dove in Cuba. Auk 54: 391. July 1937.

- Parula warbler in Washington in December. Auk 54: 395. July 1937.
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- Guns and game. Some comment and observations on small-bore guns; saving the American 28; the way to get a good rifle. Sportsman 22 (2): 74. Aug. 1937.
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Press and Radio Information and Addresses, copies of which (chiefly in mimeograph) may be obtained from the Division of Public Relations, have been issued as follows:

- Dry lake in North Dakota restored as duck refuge. Press statement 128-38. Released July 29.
- 30-day duck hunting season allowed by new regulations. Press statement 140-38. Released Aug. 2.
- Attack cage traffic in native song birds. Press statement 163-38. Released Aug. 5.
- Turnbull Slough, Wash., to be restored for use of migratory waterfowl. Press statement 166-38. Released Aug. 6.
- U. S. officials plan meetings with State game commissioners. Press statement 208-38. Released Aug. 13.
- Largest American wild fowl may yet survive. Press statement 227-38. Released Aug. 17.
- Publish "doctor book" for use on fur farms. Press statement 265-38. Released Aug. 23.

- Have high hopes for wildlife under new U. S. State program. Press statement 321-38. Released Sept. 3.
- Wildlife expedition sets out for Mexico. Press statement 273-38. Released Sept. 10.
- Posters in post offices tell duck hunters' rules for hunting this season. Press statement 372-38. Released Sept. 13.
- Rat dams for gully. Farm Flashes. July 14.
- Flushing bars for birds. Farm Flashes. Aug. 19.
- Cover for wildlife. Farm Flashes. Aug. 24.
- Paths for wildlife. Farm Flashes. Sept. 15.
- Farm pond wildlife. Farm Flashes. Sept. 18.
- Deer grazing study. Farm Flashes. Sept. 21.
- The 1937 Federal hunting regulations. Radio talk by Howard Zahniser, In Charge, Section of Current and Visual Information, Conservation Day Program, National Farm and Home Hour, Aug. 6.
- A magnificent bird. Radio talk by Howard Zahniser, In Charge, Section of Current and Visual Information, Conservation Day Program, National Farm and Home Hour, Aug. 13.
- A little booklet. Radio talk by Howard Zahniser, In Charge, Section of Current and Visual Information, Conservation Day Program, National Farm and Home Hour, Aug. 27.
- The Bear River Bird Refuge. Radio talk by Howard Zahniser, In Charge, Section of Current and Visual Information, Conservation Day Program, National Farm and Home Hour, Sept. 10.
- Birds fly fast--but how fast? Radio talk by Howard Zahniser, In Charge, Section of Current and Visual Information, Conservation Day Program, National Farm and Home Hour, Sept. 24.

WILDLIFE RESEARCH

Wildlife Surveys

Appointed Head of College Department.--Dr. Walter P. Taylor, in charge of the Texas Cooperative Wildlife Research Unit, has been named head of the newly organized Department of Wild Game at the Texas A. & M. College, reported to be the first college in the Southwest to establish such a department. The appointment will enable Dr. Taylor to coordinate the wildlife management courses being taught at the college with the wildlife research problems being investigated at the Texas unit. He will do no active teaching.

Dr. William B. Davis has been appointed as professor in the new department, and Daniel W. Lay, graduate of the college, will be a graduate assistant.

Inspect Forest Areas.--From September 7 to 11 Harold L. Blakey and Leo K. Couch, in company with Barry Parks, regional wildlife technician, Region 7, Forest Service, inspected the work of Talbot Clarke, game technician, on the George Washington National Forest in Virginia and West Virginia. One of the projects inspected was in the Big Levels Game Refuge, on which land clearing demonstrations for opening up

large areas of bear oak were in progress. The men also conferred with C. O. Handley, in charge of the Cooperative Wildlife Research Unit at Blacksburg, Va., and his assistant, C. F. DeLaBarre, who joined them in inspecting the North River turkey management and demonstration area.

Mourning Dove Study Progresses.--Dr. Allen M. Pearson, leader of the Alabama Cooperative Wildlife Research Unit, reports that the study made in July by Walter Rosene, Jr., of mourning dove stomach contents in the Food Habits Laboratory at Washington, has made it possible to speed up the examination work at his unit and that all dove specimens collected up to June 1 have been examined. Mr. Rosene is a graduate student assigned to the dove project, and the data obtained through examination of stomach contents are being tabulated so they may be combined with other information as it becomes available.

Dr. Pearson also reports that the breeding of the mourning dove continued throughout July, although there appeared to be a slight slump in that month as compared with June. Approximately 250 nests have been observed at Slocomb and Auburn. At Slocomb, where netting and trapping work was continued on a small scale approximately 60 percent of the birds captured were those hatched this year. Apparently the mature birds are much more difficult to capture during the breeding season. A total of 1,604 doves were banded, a large number of those banded in July being nestlings.

More Plants on Deer Food List.--Dr. Pearson reports that during June deer were observed eating a number of plants for which no previous records had been obtained in Alabama, among them being ash, post oak, red maple, button bush, red gum, grape, elderberry, smilax, and dwarf sumac. There continued to be reports of some damage to agronomic crops. A small field of peas planted along the edge of a dense woods was visited, and 92 percent of the hills showed evidence of deer having fed upon them. The edges of cotton fields near woods were damaged to some extent, and a field of peanuts also suffered. Many deer tracks were found in corn fields but apparently the animals fed there only on "cow-itch" vine, smilax, and weeds.

Conduct School for Wardens.--The Connecticut Research Unit, with Dr. Paul D. Dalke as leader, assisted the State Board of Fisheries and Game, from July 19 to August 14, in conducting its first school for wardens. From July 19 to 23 the Research Unit assisted in game-management instruction with the following program: July 19, a two-hour lecture on the development of game management in the United States and com-

parison of American and European practices; July 20, field and laboratory technique demonstrations, practical information given on the recording of field observations, and an exercise in food-habits study of pheasants and grouse; skulls and skeletons of common rodents and carnivores were examined; July 21, a field trip to illustrate the correlation between forestry and wildlife management; July 22, field exercise in cover mapping, from 10 a. m. to 5 p. m.; July 23, a lecture and demonstration on wild animal diseases, by Dr. Jungherr of the Connecticut State College, specimens of rabbit, bobwhite, pheasant, and gray fox being used.

The superintendent of the State Board, the assistant superintendent, the chief warden, 8 county wardens, and a marine warden, attended the first period of instruction. The second period was held during the first two weeks in August, and a program similar to the first was given by the Research Unit. Mr. Langenbach and Mr. Friley, both connected with the Research Unit, had charge of the cover mapping, and Dr. Jungherr repeated his lecture and demonstrations on wildlife diseases. Twenty-three deputy wardens, including a woman warden, were in attendance.

Lebanon Area Restocked with Pheasants.--The Lebanon demonstration area in Connecticut, according to Dr. Dalke, was restocked with 135 pheasants in April in order to study the desirability of early liberation and methods of liberation. A 10-percent loss among the 100 hen pheasants liberated was sustained prior to the incubating period, and attempts are now being made to determine what percentage of the remaining hens brought off flocks and the number of young raised to 12 weeks of age. Because of the delay in haying caused by the rainy weather most of the eggs had hatched and the birds had left the nests before the fields were mowed. Flushing-bar attachments for mowers are used very little in Connecticut, as most fields are small and many of them are enclosed with stone walls with narrow gates that do not permit the entrance of mowers with flushing-bar attachments.

Game Bird Study Helpful.--Good progress in game-bird observations was made during August by the Oregon Research Unit, reports Arthur S. Einarsen, leader. Studies of game birds in the Willamette Valley indicate that the breeding months constitute the most critical period as far as the limitation of increasing returns is concerned. More than 250 nest histories of Chinese pheasants show a loss of 50 percent through various causes during the breeding months. Nests in hayfields, it was found, produced better hatches than nests in grain or pasture grounds. The average clutch of 145 Chinese pheasant nests studied was 10.52 eggs, which is far below the number generally conceded as a theoretical nesting basis for producing annual increases from natural stock. On the basis of studies of the past two seasons, during which weather conditions were very similar, the potential possibilities for increasing returns in the Willamette Valley now appear to be rather remote. During July the Oregon Game Commission removed the Chinese hen pheasant from the shooting list

throughout the State, and in the Willamette Valley reduced the daily bag to 2 cock pheasants with a weekly limit of 4 birds. This is a 50-percent reduction in the bag limit over last year and appears to be a wise move in view of nesting results.

Handle Beaver Complaints.--During August the Oregon Research Unit continued its investigations of beaver-depredation complaints, the surveying of old plantings, and the location of new planting sites. More than 60 complaints in eastern Oregon were handled during July and August. Under proper management beavers are of great value in Oregon, especially in water conservation. The dam-building activities of these animals not only result in water for livestock, but also help improve meadow land. Inspection of one beaver dam, for example, showed that the dam was responsible for the creation of a 15-acre hay meadow on ground that in 1924 was barren except for sagebrush. Beaver were planted that year on the area.

Address 4-H Club Members.--On August 17, at the summer State meeting of 4-H club members at the University of Maine, C. M. Aldous, leader of the Maine Research Unit, spoke on "Our Wildlife Friends" and used colored slides to illustrate his talk. Talking to the boys on August 19, he urged them to keep records of their winter fur catches and to report their results to the Research Unit. Blanks for the purpose were furnished. Howard Mendall, assistant to Mr. Aldous, talked on wildlife conservation before a 4-H club at Brooks, Maine, on August 7.

On August 19, Mr. Aldous spoke to a group of persons at the Knox Academy of Science, near Thomaston, Maine, on the research and wildlife-management program of the research unit.

Continue Coot and Cottontail Rabbit Studies.--Dr. Logan J. Bennett, leader of the Iowa Research Unit, reports that mating, nesting, and territorial studies of the American coot in the vicinity of Ruthven, Iowa, were carried on during June by Clarence Sooter, who has plotted all of the coot nests on Green Slough in Clay County and by the end of the season will have obtained the complete history of approximately 400 nests. Egg counts are being taken and observations are being made on nest distribution and destruction, and the effect of weather and predators upon nests and birds.

Dr. Bennett also reports that during June Dr. George O. Hendrickson carried on the gestation studies of the cottontail rabbit by making observations on a number of pairs of rabbits kept in semi-domestic conditions. Studies were also made of the cottontail's spring movements, food habits, mating habits, cover requirements, and juvenile behavior.

Wildlife Exhibit at Ohio Fair.--During August, Dr. Lawrence E. Hicks, leader of the Ohio Research Unit, spent several days co-operating with the game management division of the Ohio Division of Conservation in the preparation of a wildlife-management exhibit which was shown at the State fair. A large percentage of the 400,000 persons who attended the fair viewed the exhibit. Dr. Hicks also assisted in dismantling the exhibit. Nearly 5,000 general releases on wildlife conservation were distributed to the visitors and 206 persons left their names and addresses with requests for advice or assistance on specific wildlife-management problems. These will be answered by the Ohio Research Unit or referred to the Ohio Division of Conservation.

Observes Waterfowl Broods.--Dr. Hicks found 34 nests of waterfowl on the Pymatuning area in Pennsylvania during June, and has 64 broods under continuous observation. J. M. Anderson, research assistant, observes the waterfowl on the area when Dr. Hicks is absent.

On June 16, Dr. Hicks spoke on "The Wildlife Conservation Research Program in Ohio", before the Veterinary Association Convention, at Ohio State University, in Columbus.

Studies Wildlife in Flooded Area.--During August Dr. Hicks made several checks on wildlife concentrations and habit modifications on 50 square miles of flooded lands, including dozens of flood ponds in the Bellevue area. Although the flood began June 25, more than 800 acres were still inundated on September 1.

Transfers to Washington Office.--Harold L. Blakey, who has been employed in the Food Habits Section, with headquarters at St. Louis, Mo., where he was engaged in wild turkey investigations, in cooperation with the Forest Service, transferred to the Washington office on August 16. In his new work he will investigate the effects of C.C.C. activities on wildlife on forested areas.

Mendall Appointed.--Howard Mendall has been selected as assistant to C. M. Aldous, in charge, Maine Cooperative Research Unit. This position became vacant with resignation of Gustave Swanson, who now has charge of the wildlife work at the University of Minnesota. Mr. Mendall will carry on educational work at the University of Maine in addition to assisting Mr. Aldous.

Study Woodcock.--C. M. Aldous, leader of the Maine Research Unit, reports that during the first 15 days of August his assistant, Howard Mendall, supervised the woodcock investigations being carried on by Mr. Benchley, after which the latter returned to Massachusetts. Predation and the seasonal movements of woodcock were studied, but little evidence of predation was found. No cats were caught in the three wooden traps that were tended throughout the summer.

Visit Mammal Laboratories.--Dr. E. Raymond Hall, of the Museum of Vertebrate Zoology, Berkeley, Calif., visited the mammal laboratories on July 7, to study weasel type specimens. On the same day Prof. A. E. Culbertson, of the Fresno State Teachers College, Fresno, Calif., studied Dipodomys specimens in the laboratories. Other visitors included Arthur Stupka, of the National Park Service, Great Smoky Mountains National Park, Gatlinburg, Tenn., on August 24; and Prof. William J. Baerg, of the University of Arkansas, Fayetteville, Ark., on August 27.

Food Habits Research

Continue Quadrat Studies.--Dr. Clarence Cottam, in charge of the Section of Food Habits, and Lawrence W. Saylor, left Washington on September 12, to join Dr. W. S. Bourn in Delaware, and then complete investigation of quadrat studies begun in that State last year. Quadrat counts have been made on areas in Bombay Hook Refuge and comparable areas where drainage operations have been under way the past year to determine the effects of drainage on wildlife food resources. The three also investigated waterfowl conditions in Maryland before returning to Washington.

On September 19 Dr. Cottam and Leo K. Couch, of the Section of Wildlife Surveys, left for the eastern shore of Maryland, where they inspected upland game areas being developed by the Farm Security Administration, in cooperation with the Maryland State Game Department.

Inspect Development Work.--From August 11 to 13, Dr. Cottam and A. L. Nelson inspected development work on the Big Levels Game Refuge and other areas in the George Washington National Forest in Virginia and West Virginia. They were accompanied by officials of the Forest Service, with whom the Bureau has been cooperating the past few years by advising them of the types of habitats various species of game require.

Laboratory in New Quarters.--The Denver Laboratory of the Section of Food Habits is now well established in its new quarters in the Customhouse (mail address, room 562). For the first time in several years adequate space and laboratory facilities are available, which will facilitate the examination of stomach material and the handling of incoming specimens. Members of the Survey traveling through or located near Denver are urged to visit the laboratory and acquaint themselves with the methods employed and the results obtained in the research work on food of mammals and birds.

E. R. Kalmbach has returned to Denver after a second season's study of nesting ducks on the Lower Souris Refuge, N. Dak. This study was undertaken to obtain an accurate and detailed appraisal of factors detrimental to waterfowl, and yielded rather startling results when compared with those obtained in 1936. Although much of

the information obtained in 1937 still remains to be analyzed, it is apparent that the percentage of successful hatchings was considerably higher than in 1936. A complete or partial hatching of the eggs occurred in nearly 69 percent of the 572 duck nests under observation, as compared to 54.4 percent in 1936. The increase appears to have resulted partly from the removal of several hundred skunks from this nesting area during the 1936-1937 winter. Crows are still relatively unimportant in the welfare of ducks on this refuge, losses from this source being recorded at less than 4 percent of the nests. Foxes have entered the picture to a limited extent and may become a suppressing factor of some importance locally. Mr. Kalmbach's study also produced considerable information on the distribution and density of nests, which is very useful in the administration of the refuge.

As part of the Laboratory's cooperative service to other governmental agencies that have wildlife problems to solve, Ralph H. Imler recently completed for the National Park Service and the Forest Service the detailed examination of more than 50 stomachs of deer, elk, mountain sheep, and moose, collected in Glacier National Park, and on the Rio Grande, Pike, Gunnison, and San Juan National Forests in Colorado, and the Shoshone National Forest in Wyoming.

Late in July, C. C. Sperry spent 3 weeks in New Mexico, Arizona, Utah, Idaho, and Montana, conferring with district agents and their assistants on the need of collecting additional stomachs of certain predators, particularly of bobcats, from all areas. He also attended the conference of Wyoming hunters at Casper, Wyo., from August 20 to 21, and gave a talk on the work of the Denver Food Habits Laboratory, requesting that the stomachs of predators, such as the mountain lion, house cat, bear, badger, raccoon, etc., as well as those of peg-legged coyotes, be saved on every possible occasion and sent to the Denver Laboratory.

Attends 4-H Club Meeting.--Early in September John J. Lynch, of the Delta Migratory Waterfowl Refuge, La., attended a regional 4-H Club meeting at Alexandria, La., and discussed conservation problems with club members. He also planned to spend several days at Catahoula Lake studying waterfowl food resources.

During July and August, Mr. Lynch continued his studies on the relation of important waterfowl food plants in the marshes at the mouth of the Mississippi River to such environmental factors as degree of salinity of water, amount of silt deposition, physical and chemical composition of soil, and turbidity of water. Observations on the too-abundant alligator-weed have brought to light the occurrence of a fungus on this plant which in certain areas may limit its growth. The behavior of this fungus is being investigated further.

Orchardist Reports Saving.---An owner of a young fig orchard in California, interplanted with broccoli for seed production, estimates linnet control operations applied under the direction of Johnson A. Neff, of the Food Habits staff at Sacramento, Calif., saved him at least \$2,000 this season. The orchardist's adjoining older orchard, which is bearing fruit, may also be saved from severe damage as a result of the control measures.

California Bird News.---During June and July, Mr. Neff mailed out Nos. 2 and 3, of Volume 2, California Bird News, issued in cooperation with the California State Department of Agriculture and the County Agricultural Commissioners for distribution among fruit growers, county agents, and others in the State.

Makes Trips.---Early in June Mr. Neff was visited by Associate Chief Henderson and later in the month went to Willows, Calif., where he and Stanley G. Jewett, refuge biologist, and Superintendent Van Huizen, of the Sacramento Migratory Waterfowl Refuge, made a reconnaissance of bird life on the area near the refuge. They observed two egret rookeries, one containing 150 nests. On July 16 Mr. Neff conferred with Leo K. Couch, E. E. Horn, and D. I. Rasmussen, at Berkeley, and on August 11 he left for southern California, where he conferred with county agents on bird control. On September 6 he left for Oregon and Washington to gather data and specimens of band-tailed pigeons. The information is to be used in a publication being prepared on this bird.

Helps Transplant Duck Foods.---Late in August Neil Hotchkiss spent several days assisting New York and Pennsylvania State game officials in transplanting a few of the more important duck-food plants from Cayuga Lake, N. Y., to ponds in the nearby Howland Island Refuge, and from Conneaut Lake, Pa., to the adjacent Pymatuning Refuge. He observed a number of locally raised ducks on the two refuges, and collected seeds of several species of marsh and water plants for experimental propagation studies at Washington.

Complete Waterfowl Nesting Study.---Early in August, C. S. Williams and W. H. Marshall completed the extensive and detailed study of waterfowl nesting on the Bear River Refuge in Utah, that they began early in the spring. During April and May they had under observation 95 Canada goose nests in a 2,000-acre marsh. A decided preference was shown by the geese for cover of hardstem bulrush, and, to a lesser extent, of cattail. In all types of tall marsh vegetation muskrat houses were important nest sites, and most of the nests were near water. Successful hatching was high. Later in the year about 2,700 nests of various species of ducks were under observation. Mr. Williams has made a careful study of the vegetation and the animal life, and of the physical and chemical conditions of the soil and water in this nesting area. Observations of the vegetation, birds, and environmental conditions were also made at Locomotive Springs and Clear Lake Refuges early in August. At Clear Lake Refuge the succession of valuable duck-food plants in a newly flooded area was noted.

Studies Dove Stomach Contents.--Walter Rosene, Jr., graduate student of Alabama Polytechnic Institute, at Auburn, was in the Food Habits Laboratory during July, examining stomach contents of mourning doves to obtain information for use in completing his study of the mourning dove. He returned to Auburn early in August, in company with A. C. Martin and R. C. McClanahan, both of the Food Habits Section. The latter two investigated waterfowl feeding areas and collected reference material useful for analyzing stomach contents of doves and deer. Since then Mr. McClanahan has returned to Mississippi to study the dove situation there. He is being assisted by Alexander Gray, of the Research Station at Auburn, and other Bureau employees in that area.

Studies Quail Food Habits.--W. P. Baldwin, a graduate student at the Wildlife Research Station at Virginia Polytechnic Institute, is making a study at the Food Habits Laboratory of the food habits of quail. The data thus obtained will be used in connection with his research work at the station. He began this study in August and expects to complete it in October.

Investigate Drainage Proposals.--Early in September Leo K. Couch and A. L. Nelson investigated proposed drainage operations near Lansing, Mich.

New Appointments.--Lawrence W. Saylor, appointed an assistant biological aide in this Section on May 1, was named a junior biologist on July 1. His work will consist of food-habits examinations and curating miscellaneous insect material. He is working on his Ph. D. degree at George Washington University.

Clarence A. Sooter, a research graduate assistant at the Iowa State Wildlife Research Unit, was appointed an assistant biological aide in this Section on July 12. Mr. Sooter holds an M. S. degree from Oklahoma A. and M. College and is at present working on his Ph. D. at Iowa State.

George A. Ammann, who obtained his M. S. degree from the University of Iowa, and has been working on his Ph. D. degree at the University of Michigan, accepted a temporary appointment as assistant biological aide in this Section on August 9.

Meyer Katz was appointed an assistant clerk-stenographer in this Section on September 1, transferring from the Bureau of Entomology and Plant Quarantine. He has a Bachelor of Education degree from the Wisconsin State Teachers' College, where he majored in biological sciences, and has done some graduate work in biology at George Washington University.

Appointment Terminates.--Miss Golda S. Payne, who was employed in this Section three months as a scientific indexer, resigned September 9 to return to her position as librarian in a local school.

Distribution and Migration of Birds

Complete Waterfowl Investigations in Canada.--Luther J. Goldman, Pacific flyway biologist, has returned to his headquarters at Berkeley, Calif., after rechecking the territory north to the Cariboo country of the Fraser plateau, in British Columbia, that he covered in his waterfowl investigations last year. He reports a slight increase in the numbers of waterfowl in that section, although the vastness of the thinly populated lakes, sloughs, and muskegs, makes it difficult at first to observe either an increase or a decrease. Reports from Williams Lake, B. C., indicate a probable increase in mallards, pintails, lesser scaups, goldeneyes, buffleheads, and green-winged teal and blue-winged teal, but no improvement in the canvasbacks or redheads.

Dr. George B. Sanders, Central flyway biologist, returned to Denver, Colo., on August 15, after completing his investigations of waterfowl conditions in the vicinity of Stobart Lake in southern Alberta, in which work he was assisted by Game Management Agent Robert Bach. They found that district extremely dry and the nesting ducks restricted to a relatively small number of sloughs, ponds, and creek pools, and to the brushy banks of irrigation canals. Most of the former nesting areas were dry, in cultivation, or lacking nesting cover. The only source of water for many of the small sloughs, ponds, and creeks, and for a few of the larger lakes, such as Stobart, was seepage from irrigation canals.

On July 15 Dr. Saunders and Mr. Bach went by airplane to Fort McMurray to observe the district north of Lakes LaLoesch and Frobisher, in Saskatchewan, and the district north of Wabiskaw Lake, southwest of Fort McMurray. These trips were made primarily to determine the importance of those areas as producers of waterfowl. The two men also investigated the effects of bush fires on ducks nesting in the vicinity of Fort McMurray, and found that much of the country north of Lac LaBiche had been swept by fire.

Before joining Dr. Saunders, Mr. Bach made a field trip through the drought area of Alberta, starting at Edmonton and proceeding southeast along the Wainwright highway to Beaverhill Lake, Ryley, Kinsella, and the Wainwright National Buffalo Park. Last year he and Game Management Agent Webster H. Ransom investigated this area, but this year Mr. Bach found nesting conditions much worse because of lack of water. Conditions near the prairie town of Ryley, he reports, could not have been much worse. In 1935 a total of 111 ducks were observed, the following year 124, and this year none. The southern part of the Wainwright Park was found completely dry. The park superintendent informed Mr. Bach that the spring migration through the park this year was only about a third as large as that of last year. On his way to Chauvin and Provost, Mr. Bach also found conditions for waterfowl poor, and he reported seeing few ducks on his return trip to Edmonton by the way of Camrose. Because of little snowfall last winter and the lack of early spring rains, Mr. Bach says that most of the brood ducks apparently passed over this entire area this spring to nest farther north.

He estimates that no fewer than 300 good duck-producing areas in this section that had water last year were bone dry this year.

A complete report on waterfowl conditions in central Canada has been received from Deputy Game Management Agents Edward T. Carter and Harry T. Maltby, after a season's work in southern Manitoba and Saskatchewan. The areas covered included Netley Marsh, Delta, Lake Francis, St. Ambrose, Lake Winnipegosis, Souris River, The Pas, Minnedosa, and the White Shell, in Manitoba; and Yorkton, Regina, Quill Lakes, Prince Albert, and the southeastern part of Saskatchewan. In summarizing their investigations the two men report a slight increase in mallards, ruddy ducks, gadwalls, baldpates, redheads, and blue-winged teal, and a decided increase in coots. Indians, trappers, and others interested in waterfowl conditions, reported a large increase in all ducks, but their reports apparently are based mostly on observations of spring migrations and not on nesting and hatch results. Mr. Carter and Mr. Maltby banded a number of birds, including spotted sandpipers, pintails, marsh hawks, mallards, Franklin gulls, blue-winged teal, and a common tern.

Charles E. Gillham, Mississippi flyway biologist, returned recently to his headquarters at Ames, Iowa, after investigating conditions in the Arctic region. A summary of his report will appear in the next issue of THE SURVEY.

Returns from Arctic Expedition.--Harold S. Peters, Atlantic flyway biologist, has returned to Washington, after accompanying Commander Donald B. MacMillan and a party of scientists and students on an expedition along the Labrador coast last summer in the ship Gertrude L. Thebaud. The expedition made numerous stops for field work and spent about 10 days in southeastern Baffinland, mainly in the Frobisher Bay district; then the party sailed north to the Arctic Circle and returned to the coast of Labrador, making several stops on the southward journey. The party arrived in Bar Harbor, Maine, on August 30, and on September 2 Mr. Peters left the ship at Rockland, Maine, to return to Washington. He gathered much interesting and valuable information on the nesting of migratory ducks and geese in the Labrador and Baffinland region.

300,000 Birds Banded.--During the fiscal year 1937 more than 300,000 birds were banded and more than 17,000 returns received. There are now 2,129 banding cooperators on the Bureau's mailing list, 66 of whom operate active waterfowl trapping stations, 21 of which are located on Federal refuges.

Retraps Pintails.--E. W. Ehmann, Lake Merritt, Oakland, Calif., informs the Bureau that on November 17, 1936, he retrapped 9 pintails that he had banded in 1927, 1 banded in 1928, and 1 in 1929.

Interesting Returns from Banded Birds.--Returns of outstanding interest from banded birds are listed in the following table, which gives the band number, the place and date of banding, and place and date of recovery:

THE SURVEY

August-September 1937

White Pelican:

34-708256, Calif., Modoc Co., 7/7/35 Kans., Gretna, 5/1/37

Brown Pelican:

36-800144, Fla., Pelican Is., 9/30/35 Cuba, Cienfuegos, 5/8/37

Mallard:

36-633958, Ill., Fulton Co., 12/16/36 Manitoba, 80 mi. E. Norway House, 5/1/37.

Black Duck:

34-544074, Conn., E. Lyme, 11/23/34 Nfld. Labrador, Byron Bay, May, 1936

34-544499, " " 5/20/35 " " , Adlatok Bay, 10/26/37

Pintail:

34-552414, La., Avery Is., 2/4/35
(Shipped to Berkeley, Calif., where released)

Texas, Jackson Co., 11/26/36.

34-552725, La., Avery Is., 2/21/35
(Shipped to Cambridge, Md., where released)

Texas, Port O'Connor, 11/27/36.

Coot:

0632678, Iowa, Lansing, 5/2/35

2/26/37
Cuba, Bahia Honda, Pinar del Rio, 11/26/36.

Louisiana Heron:

A.B.B.A.

37537, La., Avery Island, 8/13/20

La., Avery Island, Jan. 1937.

Dowitcher:

34-258326, Mass., North Eastham, 8/17/35 Mass., North Eastham, 7/24/36

Semipalmated Sandpiper:

35-64868, Mass., North Eastham, 8/24/35 " " , 7/27/36

35-64392, " " , 8/17/35 " " , "

34-18729, " " , 7/20/34 " " , 7/26/36

35-58646, " " , 7/31/35 " " , 7/27/36

35-58009, " " , 7/22/35 " " , "

35-58881, " " , 8/3/35 " " , "

Least Sandpiper:

35-10033, " " , 7/23/35 " " , "

Marsh Hawk:

36-527259, N. J., Cape May, 11/5/36 N. C., Currituck Co., 12/16/36

Red-tailed Hawk:

36-714651, Wash., Whitman Co., 5/14/36 Utah, Springville, 11/8/36

Ferruginous Rough-leg:

Marked with collar, name plate, and bell, 1/7/17, N. Mex., Clayton.

Sask., Strongfield, 5/29/37

Bald Eagle:

236059, Mich., Sault Ste. Marie, 6/20/29 Mich., Gould City, 4/21/37

Barn Owl:

A719311, Ohio, Leetonia, 6/7/36 N. Y., Jamestown, 11/26/36

Snowy Owl:

237343, N. Dak., Fairdale, 2/2/31 Ont., near Port Albany, Oct. 1936.

Yellow-headed Blackbird:

34-232559, S. Dak., Sioux Falls Mexico, Lake Cuitzeo, Michoacan, 12/4/36

Goldfinch:

F29861, Mass., Milton, 3/25/31 Mass., Milton, 3/24/37

THE SURVEY

August-September 1937

Harris Sparrow:

36-119647, Minn., Madison, 11/3/36

Okla., Woodward, 11/31/36.

White-throated Sparrows:

B119247, Pa., Norristown, 10/4/30.

Wis., So. Milwaukee, 4/26/37.

Indigo Bunting:

F19694, Oliverea, N. Y., 6/16/32

N. Y., Oliverea, 6/5/37.

Barn Swallow:

H20505, Mass., Shirley, 7/9/32

Mass., Shirley, (retrapped each year. Last recovery 5/9/37).

Cedar Waxwing:

C140722, Manitoba, Winnipeg, 8/12/32

Ky., Lawson, 2/9/37.

Fur Resources

Returns from Trip to China.--Frank G. Ashbrook, in charge of the Section of Fur Resources, who was sent to China by the Treasury Department to investigate certain phases of the importation of dog and goat skins from that country, in connection with cases involving import duty payments in this country, has returned to this country, arriving on September 15 at San Francisco, Calif., on the liner President Hoover, which was damaged by bomb fragments during hostilities at Shanghai, on August 30.

Rodent Pelts Studied for Use by Hat Trade.--Nine prairie dog skins collected by field men of the Division of Game Management and sent by this section to a hat trade research laboratory were found in preliminary investigations too hairy for use in the manufacture of hats on a large scale. The hair from several skins, however, was blended with other animal hair, and used in making several sample hats. As prairie dogs hibernate it is difficult to take them when they carry longer hair, which probably would be more suitable for making hats than hair from pelts taken in the summer.

County Establishes Rabbitry.--Los Angeles County, Calif., has established a small experimental rabbitry for furnishing a few meat or Angora rabbits to disabled persons listed on its rehabilitation program. The Extension Service is assisting the county officials in this project. Before beginning the rabbitry the officials visited the U. S. Rabbit Experiment Station at Fontana, to obtain information on equipment needed and methods of feeding and management.

Extension Research Work.--A total of 26 different combinations of feed are being used in the nutrition experiments that are under way at the Rabbit Experiment Station, at Fontana, Calif. Practically all of the experiments are being regulated so that information may be obtained on the relation of feed to enteritis or bloat. A check ration consisting of whole oats, barley, milo, wheat, and pelleted peanut meal is being used.

Gestation Period of Rabbits Determined.--Summarizing records kept the last 10 years at the Rabbit Experiment Station, Fontana, Calif., Director George S. Templeton has found that 46 percent of 2,888 litters of rabbits were kindled the 31st day after breeding, slightly less than 40 percent on the 32nd day, and more than 98 percent from the 30th to 34th days inclusive, and that 85 to 90 percent of the litters kindled at the Station were born at night. Some textbooks list the pregnancy period for domestic rabbits at 31 days; others at 32.

Correspondence Increase at Rabbit Station.--Correspondence received by the Station from the Middle Western and Eastern States has been increasing noticeably and indicates a greater interest in the Bureau's experimental work and methods of breeding, feeding, and management. During the first 8 months of this year the correspondence increased 50 percent over the same period in 1935 and 25 percent over the same period in 1936.

Visit Rabbit Station.--During July, Prof. H. H. Butterfield, of the College of Agriculture, University of California, at Berkeley, spent considerable time at the station reviewing the experimental work. Miss Helen Jepson, opera singer, and her husband, visited the station and appeared favorably impressed. Miss Jepson handles a number of fancy breeds in her good-sized rabbitry and has exhibited some of her stock at leading shows in the East. The Station also reports an unusually large number of visitors during August.

Visit Fur Animal Station.--Harry Morren, of Barrie, Ontario, president of the Ontario Fur Farmers Association, and Mrs. Morren, visited the U. S. Fur Animal Experiment Station, at Saratoga Springs, N. Y., on August 10. Mr. Morren specializes in breeding minks of a high quality. On August 13, Lithgow Osborn, conservation commissioner of New York, visited the Station. He was particularly interested in the management of the animals and the results of the experimental work. Prof. Oscar Erf, of Ohio State University, and Lowell W. Hancock, of Summerside, Prince Edward Island, were at the station on August 16 and 17.

Appointed.--Miss Doris M. Cassedy began her duties as a full-time stenographer at the Fur Animal Station, on July 7. Previously this position was maintained on a part-time basis.

Inspects Construction Work and Visits Laboratories.--Chas. E. Kellogg inspected the new office building at the Fur Animal Experiment Station, on August 18 to 21, and with Director Charles F. Bassett reviewed the experimental work and outlined the experimental program for the latter part of the 1938 fiscal year. The new office building, which was designed by C. Edgar Cope, of the Migratory Waterfowl Division, is practically completed. Native stone was used in the main part of the structure.

Mr. Kellogg also visited biological laboratories at Pearl River, N. Y., to observe the development of a new process for making pneumonia serum from rabbit blood. These laboratories maintain 7,000 rabbit hutches for producing animals for their biological products and expect to increase this number next year. Mr. Kellogg also visited a number of rabbitries near New York City.

Disease Control

Attends Veterinary Meeting.---Dr. J. E. Shillinger, in charge of the Section of Disease Control, left August 17, to attend the meeting of the American Veterinary Medical Association, at Omaha, Nebr., and to confer with Dr. Don R. Coburn, at the Bear River Migratory Refuge, Utah, on the progress being made in the study of waterfowl botulism. From the Bear River Refuge he went to Los Angeles, Calif., to assist Dr. E. L. Vail in formulating the investigational work on the diseases of rabbits, and on his return trip investigated reported epizootics on fur farms in the State of Washington.

Extend Research Program at Refuge.---At the Patuxent Research Refuge, Beltsville, Md., 24 fox pens and 32 pens for minks or ferrets, have been built and individual kennel units are being assembled in preparation for more extensive research on the diseases of fur animals. The pens will house the 42 foxes and 24 ferrets that are being used in the research. Eggs are being collected from 20 pairs of bobwhite quail, and the birds hatched from them will be raised for use in study of upland game bird diseases.

Diagnose Deer Disease.---A recent epizootic of deer on the Pisgah National Forest, N. C., has been diagnosed in the Section's laboratory as coli infection. Infected specimens were sent to the Bureau by Frederick J. Ruff, Forest Service wildlife technician, who reported that this epizootic occurred in the fawn rearing plant and was accompanied by a high death rate.

Migratory Waterfowl Mortality.---Reports from Green Bay, Wis., indicate that there is a high rate of mortality among migratory waterfowl at the mouth of the Fox River. Arrangements have been made with field workers in the vicinity to investigate and submit specimens to the laboratory for diagnosis.

Find Plague in Strawberry Valley, Utah.---Examination of specimens of ground squirrels from Strawberry Valley, Utah, by Bureau employees show that the decimation of these animals there is being caused by sylvatic plague. Dr. Don R. Coburn, stationed at the Bear River Migratory Bird Refuge, Utah, and R. Scott Zimmerman, district agent stationed at Salt Lake City, Utah, made a survey of the area on July 27, and collected several specimens of ground squirrels (Citellus armatus and C. grammurus) for examination.

LAND ACQUISITION

Inspects Refuges.--Mr. Dierffenbach left Washington on August 17, on an inspection trip of the Bombay Hook Migratory Waterfowl Refuge, Del., and the Montezuma Migratory Waterfowl Refuge, N. Y. He returned on August 23.

Return from Conference.--Arthur A. Riemer, land evaluation engineer, and Marion E. Phillips, assistant cadastral engineer, with headquarters at Des Moines, Iowa, have returned to Washington from Wilmington, N. C., after conferring with other Government officials on matters pertaining to the Pea Island Migratory Waterfowl Refuge, N. C. Mr. Phillips is now in the Washington office completing survey records on the St. Marks Migratory Waterfowl Refuge, Fla., and the Savannah River Migratory Waterfowl Refuge, S.C., and Ga.

Fred R. Kessler returned recently from Norfolk, Va., where he was on official business in connection with the Pea Island Refuge.

MIGRATORY WATERFOWL

Four New Refuges Established.--Four new migratory waterfowl refuges have been established in Western States by recent Executive Orders. They are the Turnbull Refuge, approximately 12,774 acres in Spokane County, Wash.; Apache Refuge, approximately 2,680 acres in Apache National Forest, Apache County, Ariz.; Snake River Refuge, embracing several islands in Snake River, Idaho; and Deer Flat Refuge, approximately 10,253 acres in Canyon County, Idaho. A previous Executive order of February 25, 1909, which reserved land within a reservoir site in Idaho as the Deer Flat Bird Reservation, was revoked in the latest order.

Before attempts were made to drain Turnbull Slough, the site of the new refuge in Washington, large numbers of waterfowl nested there. Improvements for restoring this area as a refuge and breeding place for ducks and geese are planned.

Increase in Trumpeter Swans Noted.--Archie V. Hull, assistant refuge manager, of the Red Rock Lakes Migratory Waterfowl Refuge, Mont., reports that there were 34 adult trumpeter swans and 51 cygnets on the refuge this summer, and 5 adults in the vicinity. Adding to these the 42 adults and 26 cygnets in Yellowstone Park and adjacent areas, the total number of trumpeter swans is 158, 81 adults and 77 cygnets. Mr. Hull reports: "We were somewhat surprised to find eight cygnets with one pair of adult birds. This is the largest number of cygnets I have ever observed or heard of with one pair. Six is the largest number I have observed thus far."

Conservationists Visit Arrowwood.--Members of the Izaak Walton League and the North Dakota State Wildlife Association spent a day during July on the Arrowwood Migratory Waterfowl Refuge, N. Dak., reports Earl W. Craven, junior refuge manager. Mr. Craven conducted them over the refuge and says the visitors appeared well pleased with the work accomplished on the area thus far.

Studies Show Increase in Duck Hatch.--The following is an excerpt from a report by Merrill C. Hammond, biological aide on the Lower Souris Migratory Waterfowl Refuge, N. Dak., on duck nesting studies undertaken on that refuge during the 1937 nesting season:

"The most outstanding fact brought out by the study of 472 duck nests in 1937 is that there was a remarkable increase in the percentage of nests producing a hatch. In 1936, 54.4 percent of the nests under observation produced a hatch, while in 1937, 68.9 percent produced a hatch, an increase of 14.5 percent. This increase has been attributed principally to the removal from the refuge between the two nesting seasons of 423 skunks, as well as numerous foxes and other predators. The pintail was the most abundant nesting species in 1937 and the blue-winged teal, gadwall, mallard, shoveler, and wigeon follow in the order named."

Thief and Mud Lakes Flooded.--Joe M. Madsen, assistant civil engineer, Mud Lake C.C.C. Camp, BF-1, Minn., states in his narrative report for August:

"Citizens of Minnesota were much astounded by newspaper reports advising that the long-dry bottom of Thief Lake is now inundated. A dam built in 1931 across Thief River at the lower rim of Thief Lake stood high and dry with its crest about 5 feet above the lake bottom. Many persons said that Thief Lake would never fill with water again, but would always remain as Minnesota's dust bowl. When they were informed through the newspapers that water was flowing to a depth of one foot or more over the crest of the Thief River dam, this news was unbelievable. To confirm the news reports, thousands of dubious persons have visited the Thief Lake dam, where the truthfulness of the reports was revealed.

"Mud Lake also has been filled with water to its present established high-water elevation. The reservoir feeding Mud Lake has been filled beyond capacity. The unexpected flooding of the reservoir and Mud Lake has provided a haven for thousands of migratory birds, but the progress of dyke construction work has been materially impeded. The flood waters are slowly receding, and it will be some time before operations can be resumed on the lowlands."

Visit Montezuma Refuge.--On September 11, Amos B. Emery, in charge of the Section of Restoration and Development, and Fred Morrell, acting C.C.C. representative of the Forest Service, left for Syracuse, N. Y., to confer with Gardiner Bump, superintendent of the New York Bureau of Game, on the work that yet remains to be done at Howland's

Island Camp, and to plan future work on the Montezuma Refuge. From Montezuma they went to Albany, N. Y., to attend a conference with State C.C.C. authorities, at which it was agreed to turn the Howland's Island Camp over to the Biological Survey for completion of the work there and for development of the new Montezuma Refuge. Mr. Emery and Mr. Morrell returned to Washington on September 13.

Seven Months without a Lost-time Accident.---From the narrative report submitted by the camp stationed on the Valentine Migratory Waterfowl Refuge, in Nebraska, it is noted that that camp has a record of more than seven months without a lost-time accident, the last lost-time accident occurring on January 27.

Visit Coastal Refuges.---On August 20, Amos B. Emery, in charge Section of Restoration and Development, accompanied by Fred Morrell, acting C.C.C. representative, Forest Service, made an inspection trip along the southeastern coast, returning to Washington September 4.

The refuge at Back Bay, Va., where they considered the possibility of locating a camp later. The sand-fixation work extending from Back Bay south along the shore to Pea Island, and the pond-development and sand-fence work at Pea Island were all inspected. The camp at Pea Island has constructed heavy sand barriers by the erection of brush fences, and the sand deposits have formed several miles of dyke 6 to 7 feet high and sloping out to a base varying from 70 to 90 feet.

At Mattamuskeet Migratory Waterfowl Refuge, N. C., the headquarters building is practically completed and the program of general clean-up, landscaping, and completion of the boundary fence is the main occupation of the C.C.C. boys. The dragline is being started on additional outfall canals to allow the lake to be kept at the lowest possible level to prevent water from backing up on the adjacent farm lands.

At Bull Island, S. C., the special beach erosion work being carried on under the supervision of Captain Egoroff, was inspected. The beach has been strengthened at the place where the ocean has been removing the sand at such a rate that it was endangering the large freshwater ponds at the north end of the island. It was decided that the new camp for the Cape Romain Migratory Bird Refuge should be located on Bull Island, where the greatest amount of work is to be done.

At the Savannah River Wildlife Refuge in Georgia and South Carolina, the camp is pushing to completion the first three units which lie north of the river. There is a possibility that the great bulk of the refuge lying on the South Carolina side will be in full operation by the first of the year.

At the Okefenokee Wildlife Refuge, Ga., the work is just getting under way. A great deal of time has necessarily been spent in getting things in order, constructing playgrounds, and building a fence around the camp to keep out the hogs. The main road from the highway to the refuge, which involved 3 miles of clearing and grading, is about completed. Final plans for the headquarters building were discussed with Mr. Hopkins, the superintendent, and the next important step will be to obtain logs for its construction.

Trout Released in Tamarac Lakes.--Philip Nelson, reservation protector in charge of the Tamarac Migratory Waterfowl Refuge, Minn., reports that on July 22, through the cooperation of the State Conservation Department, 750 brook trout and 1,500 rainbow trout fry were placed in Egg River on this refuge.

Many Ducks on Tamarac.--W.F. Kubichek, in charge of the Section of Reconnaissance and Habitat Improvement, who is making a field trip in the Middle West, reports that there are about 10 times more ducks on the Tamarac Migratory Waterfowl Refuge, Minn., this year than in the past two years. The principal species he observed were mallards and blue-winged teals.

Antelope Increase at Lake Bowdoin.--B. M. Hazeltine, reservation protector in charge of the Lake Bowdoin Migratory Waterfowl Refuge, Mont., informs the Bureau that the seven antelope on this refuge, consisting of five does and two bucks, have this year produced six fawns, including possibly a pair of twins, and that all are doing well. He says that several years ago this herd contained about 22 head, but that before the establishment of the refuge the number had dwindled steadily until only seven remained in the winter of 1936-1937.

Duck Sickness Occurs.--Paul T. Kreager, assistant refuge manager of the Medicine Lake Migratory Waterfowl Refuge, Mont., in reporting an outbreak of duck sickness on the refuge stated that up to July 31, 133 sick ducks had been gathered by C.C.C. enrollees and treated at the headquarters in especially constructed pens, and that of this number only 35 died. He writes:

"Surprisingly, the first serious outbreak of duck sickness broke out immediately after the rise of water in the lake. Before the rains of July 11 and 14, very little sickness was observed, but after a rise of two feet the outbreak increased sharply. The sickness broke out where the water was the deepest rather than on the muddy portions of the unit. Sick ducks at first appeared to be concentrated near the middle of the area. The sudden outbreak may have been caused by deposits of decaying vegetation and organic matter on the refuge from creeks."

Brown Pelican Seen in North Dakota.--C. J. Henry, assistant refuge manager of the Lower Souris Migratory Waterfowl Refuge, N. Dak., reports that on August 6, a brown pelican was observed at the edge of the refuge. The bird seemed to prefer being alone and carefully avoided the company of numerous white pelicans on the refuge.

N. Y. A. Observers Receive Biological Training.--Roy N. Bach, biologist with headquarters at Bismarck, N. Dak., reports that a series of meetings were conducted throughout the State from July 15 to 30, for familiarizing the National Youth Administration observers employed by the Biological Survey on easement refuges in the State with the objectives of the Bureau, and as a result greater

interest is being shown by the youths in their work. Although attendance was optional 90 percent of the observers attended, each observer paying his own expenses.

Topics discussed included the past and present status of waterfowl; the aims and work of the Biological Survey; identification of birds, animals, plants, and insects; plants and their relation to waterfowl; the importance of animals in the balance of nature; the value of fur-bearers; predators; and State and Federal game laws.

Refuge Has Successful Growing Season.--Robert H. Smith, assistant biologist, stationed at the White River Migratory Waterfowl Refuge, Ark., reports that the 1937 growing season on this refuge has been ideal. Some of the corn had as many as three ears to the stalk. Whip-poor-will peas have matured and in addition to furnishing excellent quail food will produce a large amount of seed for planting next year. Wild millet planted last year has reseeded itself, and a new growth has appeared.

Visits Mattamuskeet Refuge.--C. Edgar Cope, associate architect of the Section of Restoration and Development, who on August 28 returned from a 3-day trip to the Mattamuskeet Migratory Waterfowl Refuge, N. C., where he inspected the landscape and construction work, reports that although much of the work about the headquarters has been completed a great deal of finishing work, particularly landscaping, is yet to be done. There is a luxuriant growth of trees at Mattamuskeet, and careful study, he says, is being given to the development of a natural and informal landscape on the refuge.

Save Man and Child from Drowning.--Word has been received that a 5-year old boy and his father were recently saved from almost certain death by drowning by the quick action of two enrollees of the Bear River Refuge Camp BF-1, in Utah. While the father was fishing his son fell from a pier. The father jumped in and got the child but was unable to return to shore. Two C.C.C. men working nearby saw the accident and brought both persons to shore.

Seedlings Set Out on Sand Lake Refuge.--According to O. W. Techmeyer, superintendent of the C.C.C. camp on the Sand Lake Migratory Waterfowl Refuge, S. Dak., 1,585,400 seedlings have been set out thus far this year in the refuge nursery. These, added to the 206,500 seedlings set out in 1936, which were not removed for permanent planting because their growth had been stunted by drought, make a total of 1,791,900 growing seedlings.

C.C.C. Enrollee Digs Up Indian Bones.--J. J. Hedrick, superintendent of the C.C.C. camp at the St. Marks Migratory Bird Refuge, Fla., reports that one of the enrollees while cleaning up around

the base of the Mounds tower recently dug up several very fragile Indian bones that were buried only about a foot below the surface. Unfortunately the enrollee had dug into most of them before they were noticed and very few were dug out whole. A large number of odd-shaped fish bones were also found. The bones and a collection of pottery fragments that have been gathered on the refuge were turned over to a museum.

Visits Southern Refuges.--R. O. Gustafson, administrative assistant in charge of equipment for the Division, accompanied by John St. Hollow, recently appointed supervising mechanic, returned September 2 from an inspection trip to the Savannah River, Ga. and S. C., Okefenokee, Ga., and St. Marks, Fla. Refuges. They found that the equipment is being well handled and used to good advantage on the work projects.

Mr. Gustafson also reports that the supervisory personnel at the camps he visited were very much interested in the safety program and that the number of lost-time accidents per month had been considerably reduced as a result of encouraging the workers to observe the safety rules.

Sod House Camp to Have Permanent Buildings.--Sod House C.C.C. Camp BF-2, stationed on the Malheur Migratory Bird Refuge, Oreg., which has been quartered in tents for summer occupancy only, will soon have year-round buildings that will permit the camp to remain during the winter months also. Construction of these buildings is already under way.

Personnel Notes.--The following personnel have been transferred from the Division of Land Acquisition to the Migratory Waterfowl Division, to the positions listed, effective on the dates given: J. K. Walton, Jr., protector of the Muleshoe Migratory Waterfowl Refuge, Tex., August 16; Howard J. Sargeant, assistant refuge manager of the Camas Migratory Waterfowl Refuge, Idaho, August 1; Walter P. Schaefer, reservation protector of the Moosehorn Migratory Bird Refuge, Maine, July 15; David V. Black, junior refuge manager of the Blackwater Migratory Bird Refuge, Md.; August 1; Merton F. Radway, reservation protector of the Montezuma Migratory Bird Refuge, N. Y.; August 16; George E. Barclay, engineering aide on the Bosque del Apache Migratory Waterfowl Refuge, N. Mex., August 16; and A. D. Campbell, junior range examiner in the regional office at Albuquerque, N. Mex., August 1.

Miss Marjorie Ruth Grear, junior clerk-stenographer, formerly employed in the Section of Restoration and Development, was transferred on July 16 to the office of James Silver, director of Region VII, Atlanta, Ga.

Millard F. Frost, C.C.C. field inspector of the Section of Restoration and Development, has established his official station at Atlanta, Ga., in the office of regional director Silver.

Richard E. Griffith was appointed a junior biologist of the Division August 9. His new headquarters are at Portland, Maine, where he will do biological reconnaissance work along the Atlantic coast.

John St. Hornow, Clarence E. Moore, and Louis Stevens have been appointed supervising mechanics in the Section of Restoration and Development. Their duties will include checking equipment to determine cost of operation, effectiveness, and adaptability, and recommending improvements for equipment when necessary. They will also check on the qualifications and determine the efficiency of mechanics and machine and truck operators at the various camps. Mr. St. Hornow reported for duty on August 16 and is stationed at the Region VII headquarters at Atlanta, Ga. Mr. Moore reported for duty on August 17, and is stationed at the Region IV headquarters at Des Moines, Iowa, pending the transfer of the Region IX office to Omaha, Nebr., where he will make his future headquarters. Mr. Stevens will be stationed at Portland, Oreg., in the office of William Rush, regional director of Region I.

John N. Ball, associate refuge manager, formerly stationed at Mitchell, S. Dak., was transferred to the Washington office of the Division, September 4. Mr. Ball's new duties will include the supervision of the W.P.A. activities of the Bureau.

Ancil O. Talmage, junior refuge manager, formerly at the Valentine Migratory Waterfowl Refuge, Valentine, Nebr., was transferred to the Sand Lake Migratory Waterfowl Refuge, Columbia, S. Dak., September 9.

Gill Gigstead, junior refuge manager, formerly at the Chautauqua Migratory Waterfowl Refuge, Havana, Ill., was transferred to the Tamarac Migratory Waterfowl Refuge, Minn., September 22. Mr. Gigstead's new headquarters are at Detroit Lakes, Minn.

Philip Nelson, deputy game management agent, was transferred from the Upper Mississippi River Wildlife and Fish Refuge, to the Chautauqua Migratory Waterfowl Refuge, September 27. Mr. Nelson's official station is now Havana, Ill.

Roy C. Hoffman was appointed senior clerk in the Division, effective September 10.

Mrs. Winifred Deering, formerly employed by the Division of Wildlife Research, was transferred to the Migratory Waterfowl Division as junior clerk-stenographer, effective September 16.

GAME MANAGEMENT

Heads Wildlife Expedition into Mexico.--Mr. Young left Washington on September 9 for the Carmen Mountain section of northeastern Coahuila, Mexico, where he will be in charge of a scientific expedition for the Bureau, in which the Chicago Academy of Sciences,

the Smithsonian Institution, and the National Zoological Park, are co-operating. The main objective will be wildlife self-photography similar to that conducted in northeastern Louisiana 3 years ago, when for the first time, so far as known, Mr. Young and Mr. Gregory lured wolves into taking their own pictures at night. Other objectives will be the collection of mammal specimens for the scientific agencies concerned and the live capture of mammals for the National Zoological Park in Washington, D.C. Accompanying Mr. Young will be Tappan Gregory, honorary curator of mammals for the Chicago Academy of Sciences and a collaborator of the Bureau; Dr. William H. Hazlett, Chicago, a wildlife photographer; Robert C. Sturgis, of Chicago, expert in the mechanics of wildlife photography; C. R. Landon, district agent for the Bureau in Texas; Ira Wood, one of the Bureau's predator hunters; and Antonio Gonzales, Survey field aide in the Texas district.

Upon returning to Texas early in October, Mr. Young, accompanied by Howard Zahniser, of the Division of Public Relations, will make an extended trip to the Pacific Coast States, inspecting enroute various game management projects under way in the western States.

Game Management Agents and Game Preserves

Surveys Wildlife Conditions in Idaho.--During July, Game Management Agent George M. Riddick made a survey of wildlife conditions in the northern part of Idaho, commonly called the Panhandle of Idaho. In the lakes and streams there was plenty of water and ample food to feed all the young of waterfowl hatched there, all of which seemed to have reached the self-supporting stage. Mr. Riddick saw a goodly number of young ducks, several broods of young Canada geese, and seven broods of young snow geese on Coeur d'Alene Lake. According to local residents there is a noticeable increase this year in numbers of nesting waterfowl owing to better food and water conditions. Such conditions are greatly improved this year on lakes and other streams in the southern part of the State also, where along Snake River a large number of Canada geese bred and raised their young.

Rainfall Benefits Wichita Refuge.--Range lands of the Wichita Mountains Wildlife Refuge, Okla., have been benefited by this year's wet summer, reports Superintendent George E. Mushbach. After receiving 4 inches of rain during August the refuge received 3.90 inches additional precipitation early in September. The rainfall, however, has been spotted; the southern half of the refuge and the Mount Scott area received a greater amount than other parts. The lakes, except Quanah Parker, Rush, and Comanche, are again filled with water. In scattered areas the heavy rains washed out some roads, and caused considerable ditch erosion. Rain on the Saturday and Sunday before Labor Day, and on that day, kept away from the refuge many persons who had planned to spend the holiday there.

Harvest Hay at Elk Refuge.--This year's hay crop at the Elk Refuge, Wyo., is estimated at 11,642 tons which have been baled and stored in sheds built during the past two years. A large part of the native hay on the refuge is being left uncut so that the elk may have pasture during the winter.

Observe White-tailed Deer.--Three white-tailed deer have been seen recently on the Snake River Land addition to the Elk Refuge, Wyo. This is the first time, according to reports, that white-tailed deer have been seen on the refuge area.

Dude Ranch Elk Gets New Home.--A male elk calf that was taken at the Bar BC dude ranch, Wyo., last spring and raised on cow's milk later became a nuisance at the ranch and was turned over to the Elk Refuge by a State game warden. The warden named it "Bamby", and in its new home the young elk has been feeding on flowers in the headquarters yard and bedding down on the front porch of the headquarters building.

Checks Duck Nesting Areas.--During July agent Frank Poley, assisted by John Hart, chief state game warden, made an intensive check of the duck nesting areas in Colorado. Most of the State wardens and fish culture men consulted appeared greatly interested in waterfowl restoration as a State as well as a Federal problem. During the past year eight State wardens in Colorado have been given commissions as U. S. deputy game wardens. This has greatly increased their interest in protecting ducks, which have increased 200 percent in this section over last year. Most of the nesting birds in the State are mallards and green-winged teal, although redheads and canvasbacks are also making a fine showing. Food and water conditions are better throughout the State than they have been for several years, and State and Federal officials are now declaring that Colorado is definitely a "duck State".

Pinto Ponies on Refuge.--Three pinto ponies, a 2-year old stallion and two brood mares, have been obtained for use as riding stock in the administration of the Charles Sheldon Antelope Refuge, Nev., and also for the perpetuation of the breed that was a part of the western scene in pioneer days.

Buffalo Received at Game Preserve.--Two buffalo bulls were donated on August 3 by the Custer State Park, S. Dak., to the Fort Niobrara Game Preserve, Nebr.

Sight Musk Oxen on Nunivak Island.--Warden Grenold Collins, who has been visiting many points in the Bering Sea on a commercial schooner, reports that 7 musk oxen with one calf were seen recently on Nunivak Island Wildlife Refuge, Alaska, where four of the herd near Fairbanks had been transferred in 1935, and the remaining 27 animals in 1936. No other musk oxen have been seen since spring.

Fined for Speeding on Refuge.--On August 4 a resident of Lawton, Okla., pleaded guilty to speeding on the Wichita Mountains Wildlife Refuge, Okla., before a justice of the peace, and was fined \$10 and costs.

Attends Meeting of Foresters.--On August 2, Dr. Robert S. Norton, in charge of the National Bison Range, Mont., in company with Herbert Smith, of the Washington office of the Forest Service, attended the meeting of the Society of American Foresters at the Bonita Ranger Station near Missoula, Mont., held in honor of Gifford Pinchot, ex-governor of Pennsylvania, and Col. Henry S. Graves, dean of the School of Forestry at Yale University, both former chiefs of the Forest Service.

Helps Manage Wildlife Exhibit.--On August 21 and 22, U. S. Game Management agent B. J. Shaver attended the Winona County Fair at St. Charles, Minn., where the C.C.C. Camp, S.C.S. Minn.-Ill., of Lewiston, Minn., had an exhibit of live migratory waterfowl. Mr. Shaver met visitors at the exhibit and furnished information on the waterfowl restoration program. From September 4 to 11 he assisted the Minnesota State Game Department in exhibit work at the State fair. An exhibit showing the five species of ducks that cannot be shot any time was viewed by more than 125,000 persons.

Law Enforcement

Killed 146 Purple Martins.--On August 10 a resident of Madisonville, Ky., killed 146 purple martins that were roosting in maple trees. He was arrested by a Federal agent, and upon arraignment in a State court on August 11 was fined \$25 and costs of \$14.50.

Possessed Ruddy Ducks.--Charged with possession of two ruddy ducks and with hunting with a gun of more than three-shell capacity, a hunter pleaded guilty upon arraignment in Federal Court at Missoula, Mont., and was given a one-day jail sentence.

Four Named in True Bill.--A true bill charging four persons with conspiracy to violate the Lacey Act was returned by a Federal grand jury at St. Louis, Mo., on September 10. Illegal shipment and handling of beaver skins from Colorado are alleged as grounds for the grand jury action.

Predator and Rodent Control

Confer on Mouse Control Program.---On August 9, Albert M. Day, in charge of the Section of Predator and Rodent Control, conferred at Littleton, Mass., with district agent E. M. Mills and Bureau investigator D. A. Spencer, on plans for the new program of mouse control in the New England States. On August 16 and 17 Mr. Day, Mr. Young, chief of the Division of Game Management, and Dr. J. C. Munch and J. C. Ward, of the Control Methods Research Laboratory, Denver, Colo., conferred with chemical manufacturers in New York City. Dr. Munch and Mr. Ward also attended the meeting in that city of the American Pharmaceutical Association through August 20, after which Mr. Ward spent the remainder of the month transacting business in Philadelphia and Washington in connection with the Denver laboratory.

Hunters Hold Conference.---Hunters employed by the Survey in the Wyoming-Nebraska district discussed rodent and predator control methods, heard talks by Bureau officials and others, and held a rifle match from August 19 to 21 at their conference at Casper Mountain, near Casper, Wyo. Arrangements for the meeting were in charge of district agent Adolph Hamm. Among those who addressed the conference were: B. B. Brooks, of Casper; Dr. John W. Scott, secretary of the State Game & Fish Commission, of Cheyenne; Leo L. Laythe, regional director, of Denver, Colo.; Charles Sperry, of the Food Habits Research Laboratory, Denver, Colo.; F. E. Garlough, in charge of the Control Methods Research Laboratory, Denver, Colo.; R. P. McFarland, junior district agent, Grand Junction, Colo.; and Theo. Hampden, hunter of the Colorado district.

Louis Hale, of Afton, Wyo., shooting off a tie at 300 yards with Jack Boltinghouse, of Valentine, Nebr., won first prize in the rifle match. Marksmanship at this conference, according to Mr. Hamm, was much more accurate for the group than at previous conferences. Hunter Bennie Baker in hunting for some rabbits for a bobcat on display at the meeting shot a peg-legged coyote on Casper Mountain. Demonstration of the use of wire-haired terriers for bringing coyote pups out of their hole was given by Mr. McFarland.

Halt Shipment of Coyotes.---Speedy action by the Alabama Department of Conservation headed off a shipment of coyotes by a sportsman from Wyoming into Alabama. Upon receiving a newspaper clipping from the Wyoming field office the Bureau immediately relayed the information to the Alabama Conservation Department, whose officials then informed the sportsman that it is illegal to ship in coyotes and that the importation of such animals would seriously interfere with cooperative trapping work. After this explanation the sportsman willingly agreed to cancel his plans for importing coyotes. An expert trapper was assigned last winter to Alabama to help stamp out the coyote infestation.

Mountain Lions Appear.--Bureau employees in the Texas district report that recently mountain lions have been frequently seen crossing the highways between Burnet, Texas., and the Colorado River. It is believed that the rising waters resulting from the filling of Buchanan Lake is forcing the animals to leave their lairs in that vicinity. One lion, which observers first thought to be a "big dog", seen on the outskirts of San Antonio, eluded deputy sheriffs and others who chased it.

Rat Control Division Set Up by City.--The city of Charlotte, N. C., has organized a Rat Control Division in its Health Department, which is following recommendations of the Bureau for controlling these rodents. Local W. P. A. labor is being used in the eradication work, and rat-proofing of buildings and sanitation measures are being encouraged in order to make the city a more healthful place in which to live.

Pets Become Pests.--The city dump grounds at Missoula, Mont., is overrun with white rats, according to report of district agent R. E. Bateman. Two pairs of white rats kept as pets multiplied so rapidly that their owner was unable to care for them, and liberated them at the city dump. In cooperation with the State Board of Health representatives of the Bureau are now attempting to control these rodents by approved practices.

Mice Infest Shenandoah Orchards.--Frank N. Jarvis, who recently surveyed mouse infestation in apple orchards of the Shenandoah Valley, reports an unusually heavy infestation in the southern part of the valley. Frequent rains during the summer and the resulting heavy cover crops are believed to have favored the increase in mice. The orchardists are being urged to provide protection for their trees against damage from mice this winter.

Changes in Field Personnel. Carlyle Carr, formerly a district agent in charge of rodent control in Florida and Georgia and recently furloughed to attend to his private business in California, transferred on July 1 to the Oklahoma district to act as assistant district agent under A. E. Gray. Considerable interest has been shown in increased rodent control activities in Oklahoma and Kansas, making additional personnel advisable.

A. W. Moore has transferred to the Division of Wildlife Research, and is working on projects authorized by the McNary-McSweeney Act. His headquarters will continue to be Portland, Oreg.

A. W. Fair, who has been in California carrying on investigations in connection with the Control Methods Research project, is transferring to Portland, Oreg., to fill the vacancy created by Mr. Moore's transfer to the Wildlife Research Division.

Joseph Keyes, assistant district agent in California, has accepted a position with the Control Methods Research Staff and will act as district investigator for California and adjacent States.

Arthur Crews, formerly in charge of the Soil Conservation Service rodent control program in Washington and Oregon, transferred to the Biological Survey July 1, as a junior district agent in the Oregon district.

H. J. Spencer has been placed in charge of both research and operational work in the Territory of Hawaii, filling the vacancy created by H. G. Hansen's return to California.

As a result of an increase in appropriations for mouse control work in New England, together with cooperative funds provided by the various States and horticultural organizations, three junior district agents, namely, Walter W. Dykstra, of Jamestown, N. Dak., John M. Hamlet, of Mitchell, S. Dak., and Robert Isaac, of Kearney, Nebr., all formerly employed in connection with the farm forestry rodent control project, have been employed to demonstrate more effective rodent control methods to the orchardist suffering damage by tree-girdling mice. Mr. Dykstra's headquarters will be Worcester, Mass., Mr. Hamlet's, Portland, Maine, and Mr. Isaac's, New Haven, Conn.

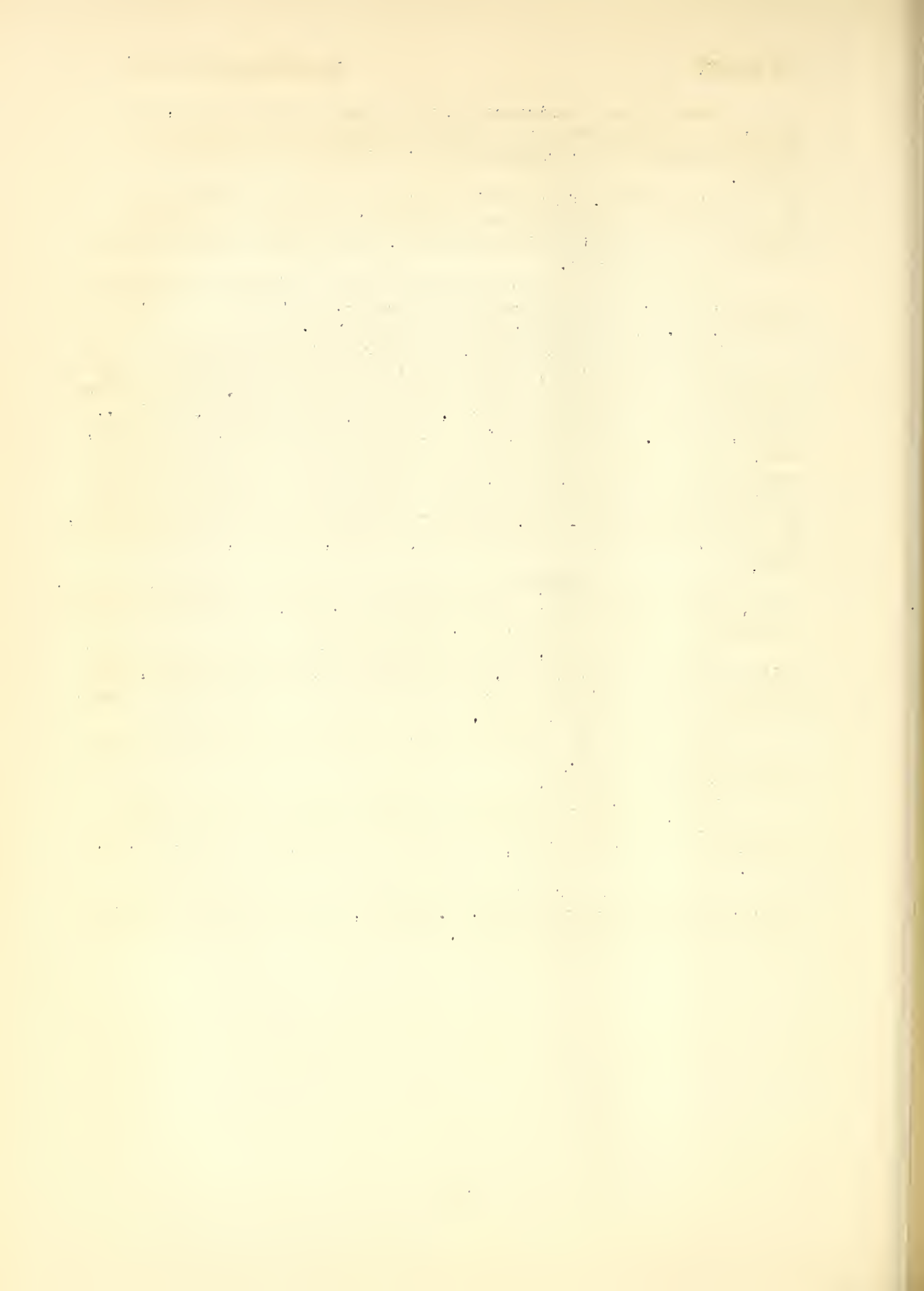
Harold O. Crowley, formerly junior district agent at Pocatello, Idaho, transferred July 1 to Albuquerque, N. Mex., as administrative assistant to regional director D. A. Gilchrist.

Miss Louise Lauck, who transferred recently to the Utah district under supervision of R. Scott Zimmerman, Salt Lake City, has returned to the Biological Survey Supply Depot, at Pocatello, Idaho, as a clerk under Paul T. Quick.

George Kerr has transferred from the Montana district to regional director Leo L. Laythe's office at Denver, Colo., to act as administrative assistant.

Norman Gillham, formerly assistant district agent in the Nevada district, has transferred to the California district with headquarters at Bakersfield, to work under district agent Chas. G. Poole.

Henry Allen, formerly serving under agent appointment in Arizona under district agent E. M. Mercer, was made junior district agent in that district on July 1.



THE SURVEY

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★ DEC 10 1937 ★
U. S. Department of Agriculture

Vol. 18

Washington, D. C., October-December 1937

Nov. 10-12

GREETINGS TO MEMBERS OF THE BIOLOGICAL SURVEY!

IT HAS AFFORDED ME a great deal of pleasure during the past year, and it has been a source of gratification to all of us, I am sure, to notice the profound and sympathetic interest the public is evincing in the Biological Survey's wildlife conservation and restoration program. This interest indicates very clearly that the Nation has become keenly appreciative of the value of our wildlife resources and of the need for protecting them. A few years ago such a public attitude was far less pronounced.

Naturally, the role of the Biological Survey as a benefactor of wildlife has become increasingly important. Year by year the work has continued to go forward. The accomplishments during the past year are indeed gratifying. They speak well of the part you are playing, and for this I am deeply grateful. Much work still lies ahead, but I am confident that your conscientious efforts will be continued throughout the coming year and that you eagerly await the new opportunities that will come with the advent of 1938.

At this season, when the yule spirit prevails, I wish to take the opportunity to express both my official and my personal appreciation of your efforts and to extend to you my best wishes for a joyous Christmas and an eventful New Year.

Ira N. Gabrielson

GENERAL NOTES

Broadcasts on Waterfowl Situation.--Dr. Gabrielson in a radio talk broadcast from Washington, D. C., on November 7, by the Mutual Broadcasting System, pointed out that although the national waterfowl restoration program is producing results "we must not allow these current evidences of increase in the numbers of wildfowl to beguile us into a sense of security too great."

"By laborious effort," the Chief explained, "we have managed to bring the resource 'out of the red' but it will be fatally easy to return to a state of insolvency if we go all the way back to the destructive methods of shooting permitted only a few years ago. The gains we have noted this season, while definite and most encouraging, are not excessive. Even now we have fewer wild fowl than we had 15 years ago. If we attempt to restore the long open seasons, large bag limits, and certain practices known to be unduly destructive, the ducks will again disappear just as they did 5 years ago. These gains that I have reported are in the nature of being paper profits as yet--we have them but we mustn't spend them."

Speak at Audubon Societies Convention.--Addresses on wildlife subjects were given at the annual convention of the National Association of Audubon Societies at New York City on October 25 and 26, by Chief Gabrielson, W. L. McAtee, and I. T. Bode, formerly wildlife specialist under the Extension Service and conservationist of the Survey until his recent appointment as director of the Missouri State Conservation Commission. The Chief explained the Survey's waterfowl restoration program and described in detail some of the newly established refuges.

Wildlife research has been greatly stimulated in recent years by increased interest on the part of the public in wildlife management, Mr. McAtee said. Fifty research projects, he pointed out, are under way in the Bureau. In addition, several other Federal agencies and more than half the States, continued Mr. McAtee, are engaged in some wildlife research, the number of projects exceeding 500, including more than 40 relating to the life histories of mammals and more than 70 to birds. Of the management projects being studied in 3 States, the favorite, he added, is the relation of forestry to wildlife management. Mr. Bode explained Extension Service methods in wildlife management.

Confer with T. V. A. Officials.--On November 1 and 2, the Chief and Dr. Clarence Cottam, in charge of the Section of Food Habits Research, conferred with officials of the Tennessee Valley Authority, at Knoxville, Tenn., and other Federal agencies interested in improving conditions for wildlife on areas under supervision of the T. V. A.

On October 30, Dr. Gabrielson gave a talk at the meeting of the Rhode Island unit of the General Wildlife Federation at Providence, in which he stressed the need of support of all groups throughout the country in conservation work. "The job of conservation," he said, "is too big for the Bureau and the official conservation officers alone." Earlier in the month the Chief visited various refuges and other wildlife areas in Missouri, Iowa, and Minnesota.

Survey Officials Elected to A. O. U. Posts.--Dr. Lawrence E. Hicks, leader of the Ohio Cooperative Research Unit, was elected secretary, and W. L. McAttee, technical adviser of the Survey, was re-elected treasurer of the American Ornithologists' Union at its annual meeting held at Charleston, S. C., November 15 to 18. Dr. Herbert Friedman, of the U. S. National Museum, was elected president.

Dr. T. S. Palmer, retired Survey official and secretary of the A. O. U. for the last 20 years was named a member of its executive council, of which Dr. H. C. Oberholser also is a member. F. M. Uhler, of the Section of Food Habits Research, was advanced to membership.

An address on "The Mexican Bird Treaty" was given by F. C. Lincoln on November 17 at the annual banquet. Papers presented by members of the Survey were as follows: "The Fate of the Cape Sable Seaside Sparrow," A. H. Howell; "Notes on the Distribution of the Caspian Tern," Miss M. T. Cooke; "Bird Sanctuary Magic," Dr. H. C. Oberholser; "The Food of Some Uncommon, Rare, and Extinct North American Birds," Dr. Clarence Cottam and Miss Phoebe Knappen; "The North American Flyways," F. C. Lincoln; "The Northern Breeding Grounds of the Atlantic Flyway," Harold S. Peters; "The Northern Breeding Grounds of the Mississippi Flyway," Charles E. Gillham; "Habitat Improvement for Migratory Birds on Federal Refuges," W. F. Kubichek; and "Federal Refuges and Nongame Birds," by J. Clark Salyer, which was read by Mr. Kubichek.

Bode Named State Conservation Director.--I. T. Bode, formerly Bureau conservationist, and later wildlife specialist under the Extension Service, became director of the Missouri Conservation Commission on November 15. During the past year he acted as liaison officer between the Biological Survey and State extension services in working out ways and means for making available the information obtained by the Survey on wildlife conservation and management. While with Bureau he was engaged in the organization of the cooperative wildlife research, demonstration, and educational projects at land-grant colleges under supervision of the Division of Wildlife Research. Before joining the Survey two and a half years ago, Mr. Bode was chief executive of the Iowa Fish and Game Commission, and from 1921 to 1932 an extension forester in Iowa.

Offers \$2 to First Indian Buying Duck Stamp.--Regional Director D. A. Gilchrist (Region 3--Southwestern) has stimulated interest in the migratory-bird hunting stamp by offering \$2 this year to the first Indian buying one at the Albuquerque, N. Mex., post office. This cash award went to Clarence Sousea, of Albuquerque, who is an employee of the United Pueblos Agency. In recognition of his interest in wildlife conservation, Mr. Sousea was elected an honorary member of the Albuquerque Game Protective Association, and a news story about his receiving the award and his photograph appeared last summer in the New Mexico Sentinel, a daily newspaper published at Albuquerque.

Regional Headquarters Moved.--The office of Regional Director Daniel H. Janzen (Region 6--East Central) was moved on November 15 from Michigan State College, East Lansing, Mich., to Milwaukee, Wis. The address in Milwaukee is Room 504, Title Guaranty Building, 110 East Wisconsin Avenue.

To insure prompt delivery of telegrams for Regional Director D. A. Gilchrist (Region 3--Southwestern) it has been announced that such communications should be addressed to Room 401, Federal Building, Albuquerque, N. Mex.; mail, however, should be addressed to P. O. Box 534, Albuquerque, N. Mex.

Acting Regional Director Burnie Maurek (Region 9--Plains) has informed the Bureau that his address for receiving telegrams and express and freight shipments is Room 406, Post Office Building, Omaha, Nebr.; his mailing address is P. O. Box 1269, Omaha, Nebr.

ADMINISTRATION

Memoranda to Field Offices Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (Admin. F. O.) series since the last issue (August-September 1937) of the Survey:

- No. 21.. Revised. Amendment No. 1. Instructions in solicitations and acceptance of bids; length of time for acceptance. (October 16.)
- No. 27. Revised. Amendment No. 1. Restriction of expenditures for purchase, maintenance, upkeep, and repair of Government-owned motor-propelled passenger-carrying vehicles. (September 13.)
- No. 76. Revised. Employment under regular funds of personnel under letter of authorization and recommendations for formal appointments to positions under the civil-service district system or requiring approval by Civil Service district managers. (Supersedes Admin. F. O. No. 76, dated January 10, 1936.) (September 20.)
- No. 113. Amendment No. 1. Motor vehicle operators' permits: operation of Government-owned vehicles by other than Government employees. (October 4.)
- No. 192. Amendment No. 2. Contracts for service-station deliveries of gasoline and lubricating oil for the period ending June 30, 1938. (October 26.)
- No. 208. Submission of recommendations for authority to dispose of obsolete or worthless papers, files, or records. (September 17.)
- No. 209. Misassignment of employees to duties outside the scope of their examination status. (September 23.)
- No. 210. Adjustments and replacements within equipment warranty period. (September 23.)
- No. 211. Fire prevention. (October 2.)
- No. 212. Submission of Forms Bi-357 and letter of authorization pay rolls to regional offices instead of the Washington office as heretofore. (October 5.)

- No. 212. Amendment No. 1. Additional copies of letter of authorization pay rolls required. (October 11.)
- No. 213. Vendor's certificate to support Government vouchers. (October 7.)
- No. 214. Routing of oaths of office and personnel forms. (October 28.)
- No. 215. Index to Admin. F. O. Memoranda. (November 1.)

The following memoranda to field offices have been issued in "Contracts" series:

- No. 2. Amendment No. 1. Procurement of incandescent electric lamps for the period ending August 31, 1938. (October 19.)
- No. 2. Amendment No. 2. Changes in Procurement Division contracts for incandescent electric lamps for the period ending August 31, 1938. (October 27.)
- No. 3. Changes in Procurement Division contracts. (September 13.)
- No. 4. Open market purchase of service-station deliveries of gasoline and lubricating oil for the period ending June 30, 1938. (September 23.)
- No. 5. Procurement of batteries for use in Government-owned automobiles. (September 24.)
- No. 6. Contract for anti-freeze compound for use in Government-owned motor vehicles. (September 25.)
- No. 7. Change in Procurement Division contracts. (October 1.)
- No. 8. Contract for spark plugs for use in Government-owned motor-propelled boats and vehicles. (October 5.)
- No. 9. Procurement of tires and tubes for use on Government-owned automobiles during period October 1, 1937, to March 31, 1938. (October 11.)
- No. 9. Amendment No. 1. Procurement of tires and tubes for use on Government-owned automobiles during period October 1, 1937, to March 31, 1938. (October 23.)
- No. 10. Procurement of fire extinguishers. (October 13.)
- No. 11. Proposed consolidated contracts for gasoline, fuel oil, and Diesel engine fuel oil requirements in the United States, for the fiscal year 1939. (October 25.)
- No. 11. Memorandum correcting No. 11. Issued without number. (October 29.)
- No. 12. Procurement of propellers for use on Government-owned boats. (October 27.)
- No. 13. Purchases of materials from Federal Prison Industries, Inc. (November 5.)

PUBLIC RELATIONS

Reports Woodcock Abundant in Vermont.--Col. Sheldon returned November 1, from a leave of absence in Vermont, where he learned from sportsmen that woodcock are plentiful in that State this season, but that ruffed grouse are only fairly abundant. Waterfowl, he says, showed a most encouraging increase in numbers in Vermont this fall.

Returns from Field.--Howard Zahniser returned to Washington November 24 from the West, where in company with Stanley P. Young he had been visiting Bureau offices and making observations at refuges and field stations. He left Washington on October 8. In Klamath Falls, Oreg., Mr. Zahniser joined eight other Bureau members in a radio broadcast, and en route home in Greenville, Ill., he talked on wildlife conservation to the students and faculty of Greenville College and to the biology classes of Greenville High School.

Helps in Motion Picture Work.--Early in October Arthur W. Susott assisted Dr. Clarence Cottam, in charge of the Section of Food Habits Research, and William R. McCarthy, of the Division of Motion Pictures, Extension Service, in taking motion pictures of marshes near Smyrna, Del. The picture when completed will show scenes of the Bombay Hook Migratory Waterfowl Refuge, Del., and in contrast other marshes of the vicinity that have been recently drained and are rapidly losing their value as waterfowl feeding grounds.

Mr. Susott also observed numerous black ducks and a number of other species on the refuge. The refuge has a heavy population of muskrats, which were beginning to build their houses. On the upland area of the refuge, a good corn crop that will be used in feeding waterfowl, had been harvested.

Broadcasts.--Speaking for Dr. Gabrielson, who was unable to be present because of a change in schedules, Howard Zahniser talked to the National Farm and Home Hour audience October 6 on waterfowl conditions at the beginning of this year's hunting season. The next Bureau broadcast on this program is scheduled for December 31.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

Text of Federal laws relating to the protection of wildlife. Service and Regulatory Announcements--B. S. 87, 28 pp. Sept. 1937. Received Oct. 2. Officials and organizations concerned with wildlife protection, 1937. Compiled by Frank G. Grimes, Administrative Assistant, Division of Public Relations. Miscellaneous Publication No. 276, 15pp. Oct. 1937. Received Oct. 21.

Supplementary regulations for the administration of the Okefenokee Wildlife Refuge, Georgia. Service and Regulatory Announcements--B. S. 89, 3 pp. Oct. 1937. Received Oct. 21.

Preserves and ranges maintained for buffalo and other big game. By Clara Ruth, Assistant, Section of Big Game Refuges and Game Agents, Division of Game Management. Wildlife Research and Management Leaflet BS-95, 20 pp. Sept. 1937. Received Oct. 28.

Abstract of fur laws, 1937-38. Compiled by Frank G. Grimes, Administrative Assistant, Division of Public Relations. Wildlife Research and Management Leaflet BS-97, 31 pp. Oct. 1937. Received Oct. 28.

Colleges and universities offering courses in wildlife management, 1937-38. Prepared in the Section of Wildlife Surveys, Division of Wildlife Research. Wildlife Research and Management Leaflet BS-98, 8 pp. Oct. 1937, Received Nov. 8.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Bell, W. B. (under the direction of). Methods in wildlife censuses. Jour. Amer. Statis. Assoc. 32: 537-542. Sept. 1937.
- Bennett, L.J. Canvasback breeding in Iowa. Auk 54: 534. Oct. 1937.
- Burleigh, T. D. Bird life on the North Carolina coast. Auk 54: 452-460. Oct. 1937.
- Cooke, M. T. Some returns of banded birds. Bird Banding 8: 144-155. Oct. 1937.
- Cottam, C.; Nelson, A. L.; and Williams, C. S. Uncommon winter birds in coastal North Carolina. Auk 54: 548-549. Oct. 1937.
- Dalke, P. D. The cover map in wildlife management. Jour. Wildlife Mangt. 1: 100-105, illus. Oct. 1937.
- Duvall, A. J. Birds observed on the coast of Virginia and North Carolina. Auk 54: 461-463. Oct. 1937.
- Goldman, E. A. A new kangaroo rat from southwestern Arizona. Biol. Soc. Wash. Proc. 50: 75-76. June 22, 1937.
- Two new pocket gophers of the Thomomys bottae group. Biol. Soc. Wash. Proc. 50: 133-136. Sept. 10, 1937.
- A new pocket gopher of the genus Cratogeomys from Mexico. Jour. Wash. Acad. Sci. 27: 402-404. Sept. 15, 1937.
- Greene, E. R. Birds of Lake Mattamuskeet, North Carolina. Chat 1 (7-8): 45-58, illus. Sept./Oct. 1937.
- Hicks, L. E. Western willet in Ohio. Auk 54: 536-537. Oct. 1937.
- Avocet taken in Ohio. Auk 54: 538. Oct. 1937.
- An Ohio invasion of LeConte's sparrows. Auk 54: 545-546. Oct. 1937.
- Imler, R. H. Weights of some birds of prey of western Kansas. Bird Banding 8: 166-169. Oct. 1937.
- Methods of taking birds of prey for banding. Bird Banding 8: 156-161, illus. Oct. 1937.
- Lay, G. B. Red squill is good bait for rat killing. Agr. Leaders' Digest 18 (6): 29-30. Sept. 1937.
- McAtee, W. L. Some local names of plants, VI. Torreya 37: 93-103. Sept./Oct. 1937.
- Neue Wege des Vogelschutzes im Obst-und-Gartenbau, by Otto Henze. Veröffentlichungen Württ. Landesstelle F. Naturschutz 13 (1936), 157-162, illus. 1937. (A Review.) Auk 54: 562-563. Oct. 1937.
- Effect of gonadotropic and oestrogenic hormones on regenerating feathers of weaver finches (Pyromelana franciscana), by Emil Witschi. Soc. Exp. Biol. Med. Proc. 35: 484-489. Dec. 1936. (A Review.) Auk 54: 570-571. Oct. 1937.
- McClanahan, R. C. European widgeon in Florida. Auk 54: 532-533. Oct. 1937.
- (With F. M. Weston, senior author.) Golden plover in Florida during winter. Auk 54: 536. Oct. 1937.
- McKenney, F. D. Disease control in the propagation of game birds. Mod. Game Breeding 7 (10): 4-5, 14. Oct. 1937.

- Marshall, W. H. (With Max S. Jensen, junior author.) Winter and spring studies of the sharptail grouse in Utah. Jour. Wildlife Mangt. 1:87-99. Oct. 1937.
- Merovka, L. J. Laws and sporting practices in relation to wildlife conservation. La. Conserv. Rev. 6 (3): 33-35, 62, illus. Autumn 1937.
- Miller, H. A. Volume tables. Jour. Forestry 35: 963-964. Oct. 1937.
- Murie, O. J. Natural elk management. Nature Mag. 30: 293-295, illus. Nov. 1937.
- Sheldon, H. P. Guns and game: Summer work for autumn play; wildfowl regulations; sport in the old days and now; hand loading pastime. Sportsman 22 (3): 74. Sept. 1937.
- Guns and game: The prospects for game shooting look good; a British-made double; rifle matches; a keen rifleman. Sportsman 22 (4): 82. Oct. 1937.
- Smith, C. F. (With Cranson Hopkins). Notes on the barn owls of San Francisco Bay. Condor 39: 189-191. Sept. 1937.
- Taylor, W. P. Hawks and owls as related to agriculture. Dallas Morning News, Sept. 17, 1937.
- Williams, C. S., and Marshall, W. H. Goose nesting studies on Bear River Migratory Bird Refuge. Jour. Wildlife Mangt. 1: 77-86, illus. Oct. 1937.
- Zahniser, H. In October--Bradford Torrey. Nature Mag. 30: 199. Oct. 1937.
- Indoors and out. Nature Mag. 30: 263, 309. Nov. 1937.

Press and Radio Information and Addresses, copies of which (chiefly in mimeograph) may be obtained from the Division of Public Relations, have been issued as follows:

- Liaison officer named to help in wildlife management on CCC forestry improvement projects. Press statement 483-38. Release Oct. 2.
- Bulletin on game bird diseases is published. Press statement 515-38. Released Oct. 8.
- Surplus big-game offered for sale. Press statement 563-38. Released Oct. 15.
- 5,000 gulls marked in migration study carry colored bands. Press statement 592-38. Released Oct. 20.
- Sportsmen spent \$600,000 last year for duck stamps. Press statement 624-38. Released Oct. 25.
- More wildlife is object of new research unit at University of Missouri. Press statement 635-38. Released Oct. 27.
- Leaflet summarizes fur laws of States. Press statement 675-38. Released Nov. 2.
- Better Muskrat conservation is aim of Biological Survey's new fur animal field station. Press statement 736-38. Released Nov. 9.
- Game census report. Farm Flashes. Oct. 5.
- Fur animals census. Farm Flashes. Oct. 12.
- Cover for wildlife. Farm Flashes. Oct. 23.
- Death from old age rare among animals. Clip Sheep No. 996. Released Aug. 1.
- Nests or shelters give clue to animal numbers. Clip Sheet No. 1007. Released Oct. 17.
- Big game in National Forests on increase. Clip Sheet No. 1008. Released Oct. 24.
- Most birds seldom fly higher than 3,000 feet. Clip Sheet No. 1009. Released Oct. 31.

Rare trumpeter swans show small increase. Clip Sheet No. 1009. Released Oct. 31.

On the eve of duck hunting. Radio talk by Howard Zahniser, in Charge Current and Visual Information, Conservation Day Program, National Farm and Home Hour, Oct. 6.

WILDLIFE RESEARCH

Wildlife Surveys

New Research Unit Established.--Under a cooperative agreement between the University of Missouri, the Missouri Conservation Commission, and the Biological Survey, a new cooperative wildlife research unit was established at the University, at Columbia, on November 1, with Dr. Paul D. Dalke, formerly leader of the Connecticut Unit, in charge. Work at the Connecticut Unit will be continued under an arrangement whereby John Pearce, stationed at the Northeast Forest Experiment Station, New Haven, Conn., and Prof. A. E. Moss, head of the Department of Forestry, Connecticut State College, will look after the general program.

Inspects Lake States Forests.--Harold L. Blakey returned to Washington, November 1, from a six weeks' inspection trip of C. C. C. work and general wildlife conditions in the Lake States. He was accompanied by R. R. Hill, assistant regional forester, and W. A. Elkins, regional wildlife assistant, both of Region 9. Inspections were made on the Huron, Hiawatha, Marquette, and Ottawa National Forests and State forests and game refuges in Michigan; the Nicolet and Chequamegon National Forests in Wisconsin; and the Chippewa and Superior National Forests in Minnesota. Mr. Blakey reports that an active program of forest and wildlife management is under way in this region, and that much has been accomplished with C. C. C. labor. Mid-winter food for deer continues to be a most critical problem in the Lake States, and with the deer herds growing in size the danger of increased winter mortality in extensive browsed-out deer yards is becoming more acute.

Interesting Dove Observations.--Dr. Allen M. Pearson, leader of the Alabama Research Unit, reports that several interesting mourning dove observations, not previously recorded, were made during September. It was found that some of the birds hatched early in 1937 had acquired adult plumage as early as the first week in September. Outwardly they resembled more mature birds, but upon dissection their bones were found to be softer and the reproductive organs not fully developed. It is probable that these birds started breeding late in fall. Nesting continued throughout September. In one nest under observation the second egg was laid on September 28, and on the last day of the month a total of 9 nests were under observation.

Graduate Assistant Added to Staff.--R. J. Wheeler, Jr., has been added as a graduate assistant at the Alabama Research Unit and stationed at Bellamy to continue the field work on deer previously conducted by D. N. Ruggles, who has resumed his studies at the Alabama Polytechnic Institute.

Mr. Wheeler spent most of October locating deer and observing their feeding habits. With the advent of fall weather and with green vegetation greatly reduced, he found the animals scattered and feeding over a larger area. They were not concentrating at places frequented during the summer, but were mostly in the flatwoods along the creeks, and usually fed in small groups of 2 to 4. Sumac, smilax, sparkleberry, mulberry, dogwood, ash, hickory, red gum, goldenrod, and Florida pussley appeared to be heavily browsed. Acorns that fell were eaten readily.

Witness Brush-Clearing Demonstration.--C. O. Handley, leader of the Virginia Research Unit, Cecil F. DeLaBarre, and C. F. Phelps, in company with Leo K. Couch and Harold L. Blakey of this section, witnessed a brush-clearing demonstration conducted at the Big Levels Refuge on September 9, by M. C. Howard, supervisor of the George Washington National Forest. A No. 60 trailbuilder, or bulldozer, equipped with a special blade to which a number of 2 by 2-inch bar-steel teeth had been welded was first tried on an area from which laborers had cleared the brush, and later on uncleared areas. The machine worked just as effectively on the uncleared areas as on those that had been cleared. On a boulder-strewn terrain it was necessary for the bulldozer to make three trips instead of one to clear thick bear oak and scrub pine and to scarify the soil 8 inches deep. Trees up to 4 to 5 inches in diameter were easily uprooted. A regular smooth blade was tried later, but time did not permit giving a full demonstration. This blade, however, appeared to be more effective than the one to which the teeth had been welded.

Clearing operations on the Big Levels Refuge for improving wildlife conditions were recommended some years ago by members of this section. Should the bulldozer prove satisfactory it could be used in clearing patches for wildlife use on mountain tops, where the brush has little value as timber. Sodded clearings, 1 acre to every 25 acres of mountain top, should provide suitable conditions for deer and also for grouse and wild turkeys.

Studies Birds of Virginia.--Russell DeGarmo, a graduate of Bethany College, who entered the Virginia Polytechnic Institute on September 1 as a graduate fellow in the Department of Biology, transferred on September 30 to the Research Unit and has been assigned the subject "A List of the Birds of Virginia" as his major thesis problem. Much work already has been done on this subject by Dr. J. J. Murray and C. O. Handley, and it is hoped that Mr. DeGarmo will be able to complete the list within the year for publication under joint authorship.

Inspect Salt Licks on Elk Range.--On September 7, C. P. Patton and L. S. Givens, graduate fellows at the Virginia Research Unit, inspected 5 of the 8 elk salt licks established on the Giles-Blank elk range. On September 23, C. O. Handley, C. F. Phelps, D. G. Rivers, and Mr. Patton inspected all 8 licks and found that 6 showed signs of good use. This indicates that the elk range in the Dismal Creek and No Business Creek sections in summer, but cross to the Mill Creek section, a few miles distant, late in fall. It is proposed to establish salt licks throughout

the 60-square-mile elk range to keep the elk away from areas being used by cattle, and also to counteract the use of salt as bait in other areas during the hunting season.

Studies Beaver Food Habits.--C. M. Aldous, leader of the Maine Research Unit, reports that Donald O'Brien is attempting to determine the age classes of aspen and alder and which of these furnish the greatest quantity of food for beavers with little waste. A pair of beavers obtained from the Maine Fish and Game Department and placed in a pen about 40 feet square are fed known weights of aspen and alder bark that Mr. O'Brien has peeled and weighed according to diameter classes. Parts of the food not eaten are removed daily and weighed. The beavers are weighed regularly once a week. Mr. O'Brien is first measuring the food consumed on a quantitative basis after which he will try to measure it qualitatively by using known quantities of several species of trees and weighing the unused parts daily.

Begins Waterfowl Survey.--Mr. Aldous has begun a State-wide survey of water areas in Maine to determine the kinds of waterfowl that nest on them, and their relative distribution and abundance. Howard Mendall, assistant leader, has completed a survey of Aroostook County and expects to complete a report on his work soon. He also has prepared a map of the water areas in this county, showing the presence of waterfowl and food and cover plants, and has recommended the planting of additional plants in certain areas. The ring-necked duck, according to popular belief, rarely breeds in Maine, but in Aroostook County it has been widely distributed during the breeding season.

Attic is Flicker's Home.--Dr. H. C. Oberholser has received a report from Denver, Colo., that a male flicker lives during the summer in the attic of a home there. The owner's family has watched this bird four years and is certain that it is the same one that reappears each season. The flicker spent the first two years in pecking a hole through the concrete stucco wall outside the attic, and in the following two seasons it put some finishing touches to the entrance.

Research Fellowships Awarded.--The Oregon Research Unit, according to Leader Arthur S. Einarsen, has awarded research fellowships to Eugene Crawford, formerly employed by the Bureau at the Seney Migratory Waterfowl Refuge, Mich., and to E. A. Danielson, of Nebraska. Mr. Crawford's thesis subject is the foods of migratory waterfowl in the Willamette Valley. In addition, he is making observations of small game and maintaining the unit's banding station for migratory birds. Mr. Danielson has been engaged in extension work 5 or 6 years, and for his thesis subject is studying the management of the unit's demonstration area and making a survey of Benton County with the view of establishing a management plan there for increasing small game.

Rejoins Bureau.--Lawrence J. Palmer was transferred on October 1 from the Forest Service to the Biological Survey and is stationed at Juneau, Alaska, where he is in charge of the Bureau's wildlife research program for the Territory. He is also coordinating the cooperative activities between the Survey and the Forest Service, the Alaska Game Commission, the fur-animal experiment station of the University of Alaska, the Reindeer Service of the Office of Indian Affairs, Department of Interior, and other agencies. Mr. Palmer was engaged on reindeer studies with the Survey 15 years before he transferred to the Forest Service, with which he has been stationed at the Rocky Mountain Forest Experiment Station, Fort Collins, Colo.

Count Prairie Chickens.--Dr. Walter P. Taylor, of the Texas Research Unit, reports that two of his graduate students rope-counted Attwater prairie chickens on about 1,500 acres in Colorado County, Tex., from September 1 to 4. They also collected scats, specimens, and other life-history material and helped the Barnard-Coschatte Wildlife Association patrol its prairie chicken demonstration area. The first draft of their report on the status, habits, limiting factors, and management of Attwater prairie chickens is about 65 percent complete.

Attends Game Board Meeting.--Dr. Daniel I. Rasmussen, leader of the Utah Research Unit, supplied information on game conditions in Utah at the annual meeting of the State Board of Game Control held at Salt Lake City on September 3, for use in drafting hunting regulations. This board has the power to prolong seasons, open and close game preserves, designate the number of licenses to be issued for hunting elk and deer on various areas in the State, and formulate other regulations on big game.

Studies Relation of Grazing to Grouse.--During August, Lynn Griner, a graduate student at the Utah Research Unit, studied the relationship of grazing to grouse abundance on the Parker Mountain area in southern Utah, which is badly overgrazed. He also made grouse observations in Strawberry Valley and reports that large numbers of ground squirrels died there of sylvatic plague during the summer. He first noticed that the rodents were affected by a strange malady during July and reported his observations to Dr. Rasmussen, leader of the Utah unit. The two, accompanied by Dr. Coburn, of the Bear River Refuge, and Leo K. Couch, returned to the area to investigate further. Dr. Coburn determined that the disease was sylvatic plague. As far as known this is the first general infestation of the disease in Utah.

As practically all of the ground squirrels had hibernated late in August further observations for evidence of the plague could not be made. Next spring, however, it is planned to continue observations to see if the rodents still carry the disease. Mr. Griner also watched for occurrences of it among other forms of wildlife, but found that grouse apparently had not been affected. Several dead minks, however, were reported in the area, and as this was the only species in which more than normal losses appeared it is probable that these animals also contracted the plague.

Deer Affect Reproduction of White Cedar.--Shaler E. Aldous, assistant biologist at the Lake States Forest Experiment Station, St. Paul, Minn., reports that one-tenth of an acre of the white cedar reproduction area on the Kawishiwi Experimental Forest, Ely, Minn., has been enclosed with a deer- and rabbit-proof fence for determining more fully the effect of deer browsing on the natural reproduction of these trees. Although only 2 or 3 white cedars were believed to be growing in the experimental forest, an area of about 1 1/2 acres containing about 40 trees 2 to 10 inches in diameter was found on October 14. The moderate numbers of deer in this vicinity are not known to "yard", but little of the cedar reproduction growth on this area was more than a foot high and all the large trees had deer lines. The larger trees are constantly reseeding and the new seedlings are widely scattered. A small mountain maple found among the cedars also had been browsed excessively.

Conduct Experiment on Rodent Seed-Eating.--Mr. Aldous and R. K. LeBarro also connected with the Lake States Forest Experiment Station, report that an experiment they conducted last May and June indicates that seed-eating rodents apparently find jack pine seed on undisturbed ground just as easily as they do on artificially prepared seed plots. Foresters say that small animals eat a large number of conifer seeds planted in prepared plots, and it is commonly believed that the freshly disturbed ground attracts them.

In the experiment four plots, each containing four subplots, were used. Two plots were in stands of uncut jack pine, and the other two on land from which the pine had been cleared in 1935. In the uncut pine the seeds were carefully placed about a foot apart on the ground surface litter and pine needles--each seed being placed between two marker sticks 8 inches apart. Eighteen days later the test plots were examined and, as many mouse droppings were found, it is believed that these rodents were responsible in most cases where seeds were missing or damaged.

Compares Deer Drives.--Mr. Aldous has compared this year's deer drive on a 500-acre wooded area, 19 miles west of Ely, Minn., with the drive made there last year. A total of 16 deer were driven off last year and during the hunting season 7 were known to have been killed. Two hundred deer were killed during the season last year on an adjoining area. After the hunting season a drive was repeated on the 500-acre forest with the following results: 13 deer and 4 sets of intestines from hunting-season kills were found, and 11 grouse and 11 rabbits. The drive this year was made on October 22 and the following animals were counted: 16 deer, 22 grouse, 12 rabbits, 1 bear, and 1 weasel. In spite of the heavy deer kill last year it is interesting to note that the number of these animals driven off the area was the same as the year before, namely, 16. The rabbit population showed an increase of 1, and the grouse had doubled in number.

Mr. Aldous reports that the greater abundance of grouse this year is noticeable throughout the entire forest. During his 17 days in the field in October, he happened to observe 44 ruffed grouse and 1 spruce grouse. These are not included in the deer-drive figures, and most of them were seen along roadways.

Study Ducks on Ruthven Area in Iowa.--Rearing studies on ruddy and redhead ducks were conducted during the summer in the vicinity of Ruthven, Iowa, by Dr. Logan J. Bennett, leader of the Iowa Research Unit, and Jessop Low, graduate student, and brood counts of these two species were made until the middle of September. Observations of early fall migration were also made in this area by Dr. Bennett.

Talks on Conservation.--Dr. H. C. Oberholser returned October 8, from a 10 weeks' trip through the central-southern, central, and central-northern States, during which he gave a number of talks on conservation, conferred with State game officials and others, and collected additional material for his work on the birds of Texas.

At McGregor, Iowa, he gave several talks on birds, mammals, and conservation during July at the meeting of the American School of Wildlife Protection, after which, at Memphis, Tenn., and New Orleans, La., he conferred with persons interested in cooperating with the Bureau in its conservation program. At New Orleans, he also held several conferences with officials of the Louisiana Department of Conservation. He had planned to give several talks at the Farmers' Short Course at College Station, Tex., but upon his arrival there learned that the sessions had been canceled.

At Huntsville, Tex., Dr. Oberholser gave an address at the Sam Houston State Teachers College, and at Bryan, Tex., he talked before a local wildlife conservation group. He also visited Austin, Tex., for a conference with State game and conservation officials and officers of the State University. From Austin, he went to Matagorda Island, Rockport, Corpus Christi, and San Antonio to collect additional information on Texas birds. At Dallas, he gave a number of talks in connection with a campaign for the teaching of nature study and conservation in the public schools.

After leaving Texas Dr. Oberholser stopped at Norman, Okla., where he had been requested to identify a number of birds in the University of Oklahoma Museum. In addition to this museum, he also visited museums in the following other cities in continuing his research on birds: Memphis, Tenn.; Denver, Colo. Lincoln, Nebr.; Chicago, Ill.; Ann Arbor, Mich.; Cleveland, Ohio.; and Pittsburgh, Pa.

Mammal Material Arrives at Laboratory.--The Shiva Temple mammal material collected last summer in the Grand Canyon in Colorado and Arizona by an expedition headed by Dr. H. E. Anthony, of the American Museum of Natural History at New York, has arrived at the mammal laboratory. Dr. Anthony plans to use the comparative material in the Survey's collections from Arizona and Utah in examining and identifying the collections obtained on his expedition.

Use Mammal Laboratory.--Prof. A. A. Nichol, of the College of Agriculture University of Arizona, studied bighorns and white-tailed deer specimens at the mammal laboratory on October 29 and 30. He is engaged in a study of the desert bighorn in cooperation with the National Association of Audubon Societies..

F. Carrington Weems, of New York City, conferred with E. A. Goldman at the laboratory on October 30. Dr. Ned Dearborn, of Hilton Village, Va., former

ly a research employee of the Bureau in fur resources investigations, studied cross-sections of small mammal guard hairs at the laboratory on September 27 and 28. On October 13, R. M. Schmitt, of Canton, Kans., conferred with A. H. Howell at the laboratory. He is a taxidermist interested in birds and mammals, and has a small private museum. Norman Preble, of Wakefield, Mass., was a visitor on November 2 and 4.

Food Habits Research

Attends Drainage Committee Meeting.--Dr. Clarence Cottam, in charge of the Section of Food Habits Research, represented the Bureau at a meeting of the Tennessee-Cumberland Drainage Basin Committee of the National Resources Committee at Knoxville, Tenn., on November 16. He was named a member of the drainage committee this fall to represent the Survey in matters pertaining to wildlife. As he was unable to attend the October 13 meeting, F. M. Uhler took his place and explained the Bureau's views on projects affecting wildlife. This body has been asked by the National Resources Committee to revise parts of its "1936 Report on Drainage Basin Problems and Programs" and consider additional projects being sponsored by Federal and State agencies. Several projects have been referred to the Bureau for consideration.

Confer on Mosquito-Control Work.--Dr. Cottam and Dr. W. S. Bourn conferred with representatives of the Bureau of Entomology and Plant Quarantine, the Forest Service, and the New Jersey Mosquito Extermination Association, at Atlantic City, on November 11, on the advisability of drainage projects being undertaken in New Jersey by C. C. C. camps. On their trip to Atlantic City they were accompanied by L. W. Saylor, of this section, who remained in the vicinity of Smyrna, Del., two days and made tests for determining the effects of ditching on wildlife habitat.

Testifies in Land Acquisition Case.--On October 14 Dr. Cottam was called as a witness at a condemnation hearing at Manteo, N. C., on the biological value of certain lands within the Pea Island Migratory Waterfowl Refuge, N. C., that are involved in the acquisition proceedings instituted by the Federal Government. Before returning to Washington Dr. Cottam inspected waterfowl areas along the coasts of North Carolina and Virginia.

Motion Pictures Taken of Marsh Areas.--Motion pictures of drained and undrained marsh areas near Smyrna, Del., were taken early in October by William R. McCarthy, of the Division of Motion Pictures, Extension Service. Dr. Cottam and Arthur W. Susott, of the Division of Public Relations, accompanied Mr. McCarthy and assisted him in taking the pictures. Dr. W. S. Bourn, Neil Hotchkiss, and L. W. Saylor, who were in the vicinity at the same time, made ecological studies of the marsh areas. Aerial motion pictures of New Jersey marsh areas were obtained later through the courtesy of the Navy Department, which used a dirigible for taking them.

Inspects Ohio Conservancy District.--Complying with a request from the Muskingum Watershed Conservancy District in Ohio, A. C. Martin inspected the development of water impoundments there during the middle of November and suggested plans for improving conditions for attracting waterfowl. The 11 water conservation pools being developed in the 14 reservoirs of the project each cover 1,000 to 3,000 acres and upon completion are expected to attract waterfowl that migrate across southeastern Ohio. They are being built with a view of conserving water and wildlife as well as affording flood control and public recreation facilities.

Observes Crow-Bombing Experiment.--On November 23 F. M. Uhler went to Harrisonburg, Va., to observe a crow-bombing experiment to be conducted there by C. O. Handley, leader of the Virginia Cooperative Wildlife Research Unit, at Blacksburg, and to evaluate the effectiveness and practicability of this method of control.

Study Crow Damage to Crops.--In cooperation with the Extension Service, the Denver Food Habits Laboratory is appraising the crow damage to crops this fall and winter in Oklahoma. A questionnaire for obtaining information has been sent throughout the State by the Extension Service, and in addition, Ralph H. Imler, of the laboratory, will be stationed near the center of the crow-damage area to make a farm to farm appraisal of damage on representative sections. Data obtained from the questionnaire will be compared with that obtained by Mr. Imler and correlated for a statistical report. The Bureau has done much work in Oklahoma in developing control methods, but so far as known this is the first attempt to get a statistical picture of crow damage in the State.

Laboratory Improved.--E. R. Kalmbach, in charge of the Denver laboratory, reports that facilities for research have been improved greatly by a recent reconditioning of the quarters and the installation of new equipment. The laboratory was moved this fall to the Customhouse (mail address, Room 562).

Confer on Crow Problems.--On August 24, Mr. Kalmbach conferred with I. T. Bode, who has been a wildlife specialist working under the Extension Service, on crow problems in Oklahoma. The preceding day he conferred with Dr. J. E. Shillinger, in charge of the Section of Disease Control, on studies of duck sickness being conducted at the Bear River Migratory Waterfowl Refuge, Utah.

Confer on Botulism Research.--Early in September, Mr. Kalmbach was in the Salt Lake Valley, Utah, and conferred with Drs. Shillinger, Coburn, and Quortrup on continuing research on waterfowl botulism. Improved laboratory facilities at the Bear River Refuge now make it possible to learn more about this disease and to work out local remedial measures.

Less Duck Damage to Pea Crops.--Recent investigations by C. C. Sperry, of the Denver laboratory, indicate that a decrease in the damage by ducks to peas in the San Luis Valley, Colo., is because of reduced acreages of this legume as well as a decrease in the abundance of ducks. Early in August, Mr. Sperry inspected an area at South Park, Colo., for its possibilities as a waterfowl refuge.

Resigns.--Miss Marjorie Scott, who has been employed as a part-time stenographer at the Denver laboratory, resigned August 31, to accept employment outside the Government. Miss Florence Ferguson, of the Section of Distribution and Migration of Birds, in Washington, was transferred to Denver to fill the vacancy and also provide stenographic assistance to Dr. George B. Saunders, biologist of the Central Flyway.

Finds Eelgrass Transplantings Failed.--Early in October F. H. May inspected areas of eelgrass that had been transplanted at various places along the Atlantic coast from Delaware to Virginia during the past few seasons, and found that most of the plants had failed to survive. Native eelgrass, however, is being used again in the Harborton, Va., region to pack crabs for shipment, which indicates that the plant is probably becoming more abundant in that region.

Tabulate Results of Stomach Examinations.--Through the cooperation of the Soil Conservation Service this section has been able to obtain the part-time services of the following Works Progress Administration employees for a six months' period: Dr. Evelyn Rider, Miss Pherne Miller, Edward L. Anderson, Ruben Dagenhart, and Edward H. Ozmun. These employees are indexing and tabulating results of stomach examinations of birds and mammals to make this information readily available for the use of the Soil Conservation Service.

Study Effect of Pollution.--On November 5 and 6, F. M. Uhler and Clarence F. Smith obtained water samples from waterfowl areas in Chesapeake Bay and studied the possible effects of pollution on duck feeding grounds on the bay from the Delaware River and the Chesapeake and Delaware Canal. They also visited the Blackwater Migratory Waterfowl Refuge and checked the growth of marsh flora, where chemical control experiments had been carried out some time ago.

Obtain Snakes for Food Habits Photographs.--George E. Mushbach, manager of the Wichita Mountains Wildlife Refuge, Okla., and his assistants recently obtained excellent living specimens of the broad-banded copperhead, the western diamond rattlesnake, and several species of nonpoisonous snakes for the use of the Food Habits Section in preparing much-needed photographs. The series of illustrations of the snakes occurring east of the Rocky Mountains is nearly complete, but living specimens of many Western and Southwestern species are

still needed, including the Pacific rattlesnake, which is particularly wanted at this time. Any Bureau employee able to supply a specimen of this or other species occurring on the Pacific coast is asked to communicate with F. M. Uhler, of this section. During the past year field men of the Bureau and of several educational institutions obtained living reptiles for the collection from the far West.

Alligator Weed Attracts Fish for Herons.--Recent observations by John J. Lynch, stationed at the Delta Migratory Waterfowl Refuge, La., indicate that the alligatorweed (Alternanthera philoxeroides) affords important shelter to mudfish, a favorite food of herons at the refuge. These birds can catch the fish rather easily in these weeds, which heretofore had been regarded as having little value for wildlife.

Studies Food of Geese.--With the return of blue and snow geese, Mr. Lynch is continuing his observations of the food preferences of these birds. Last spring he found that common three-square plants were eaten in greater quantities than cattail.

Investigates Food Plant Experiments.--Neil Hotchkiss left November 15, to investigate problems connected with the experimental propagation of waterfowl food plants at the Delta Migratory Waterfowl Refuge and other refuges in Louisiana and Texas. He is accompanied by Mr. Lynch.

Inspects Municipal Waterfowl Refuge.--Complying with a request of State Game Warden E. Lee LeCompte, Mr. Hotchkiss inspected an area near Baltimore, Md., on November 3, which is being developed as a municipal waterfowl refuge. He later conferred with State and city officials and recommended the planting of certain aquatic plants for waterfowl.

Continues Dove Studies.--R. C. McClanahan left early in November for a second trip to Mississippi to make further studies of conditions related to the open hunting season on the mourning dove. He spent September in that State obtaining data on the life history of this dove, which will be available for determining future open seasons. While there Mr. McClanahan found 17 active dove nests, examined 405 birds, and collected about 280 crops and gizzards. On his second trip to Mississippi, he attended the American Ornithologists' Union meeting at Charleston, S. C.

Named Junior Biologist.--Clarence A. Sooter, appointed as an assistant biological aide in this section on July 12, was named junior biologist September 1.

Distribution and Migration of Birds

Confers on Herring Gull Study.---On October 20, F. C. Lincoln, in charge of the Section of Distribution and Migration of Birds, conferred with officials of the Museum of Comparative Zoology, Cambridge, Mass., on the cooperative study of the movements of herring gulls that is under way, and also on the status of the New England flight of migratory waterfowl. The ducks and geese of this part of the Atlantic Flyway, Mr. Lincoln explains, have shown a gratifying recovery. The following day he inspected the banding station of J. L. Peters, at Harvard, Mass., and then, with Mr. Peters, left for Marshfield, Mass., for a conference with State Ornithologist J. A. Hagar. The three men reported observing the migration of the elusive yellow rail, a bird so secretive in its habits that it has been seen by very few ornithologists.

Mr. Lincoln also visited the O. L. Austin Ornithological Research Station, on Cape Cod, where important bird studies are being continued under the direction of Dr. Oliver L. Austin, Sr. On October 25 and 26, he conferred with officers of the Linnaean Society of New York and the National Association of Audubon Societies on matters pertaining to the herring gull study and the banding of birds of prey.

Makes Woodcock Survey.---In a survey of the status of woodcock, Harold S. Peters, biologist of the Atlantic Flyway, visited Pennsylvania, New York, Vermont, New Hampshire, Maine, Ohio, Michigan, and New Jersey from September 29 to November 7. He also obtained information on these birds from State game departments, sportsmen, and members of the Bureau's field staff. On November 4, he accompanied Regional Director Bertrand E. Smith (Region 8-Northeastern) in a Navy dirigible from Lakehurst, N. J., to make a survey of waterfowl conditions along the coastal region of New Jersey and the Delaware River. About 100,000 ducks, mostly on the Bombay Hook and Killcreek Refuges, were seen.

Mr. Peters also addressed the following groups on the Bureau's investigations of waterfowl in Canada and Labrador: Students at Bowdoin College, Brunswick, Maine, October 13; Rotary Club, Columbus, Ohio, October 25; Groveport, Ohio, High School, October 25; Westerville, Ohio, High School, October 26; and zoology seminar at the University of Michigan, October 23.

Continue Waterfowl Studies in Mexico.---Luther J. Goldman, Pacific Flyway biologist, has resumed waterfowl investigations in western Mexico, and in addition to covering the territory visited in previous years, he will make detailed investigations of important areas in the Yaqui and Fuerte Valleys. Dr. George B. Saunders, Central Flyway biologist, will investigate waterfowl conditions in the northern and northeastern parts of Mexico, where several lakes and reservoir areas appear to be important concentration points for ducks and geese. He also will study the status of waterfowl in Texas.

Reports on Arctic Expedition.---Charles E. Gillham, Mississippi Flyway biologist, reports that on his waterfowl investigations last summer in the Arctic and other northern regions, he traveled more than 12,000 miles, covering most of the distance in airplanes, Eskimo schooners, and canoes. His travels by waterways in the Mackenzie Delta alone covered 1,800 miles. He visited the Northwest Territories, Yukon, and Alaska, making trips to Coronation Gulf on the Arctic coast, the lower Mackenzie River delta, and the interior of Alaska and Yukon.

On the northern tip of Richards Island, Mr. Gillham took motion pictures of a herd of 4,300 Canada reindeer, which he reports are in good physical condition. He also banded a number of black brant, and the motion pictures he took of these birds are probably the first ever taken of this species. In the lower Mackenzie River he reports that a great number of lesser snow goose nests were lost in high water, and that practically all the nests at Kendall Island were washed away. One of his most interesting experiences was the observation of summer whaling by the Eskimos. Returning home by the way of the Gulf of Alaska, he arrived in Seattle, Wash., on September 9.

Interesting Returns from Banded Birds.---Returns of outstanding interest from banded birds are listed in the following table, which gives the band number, the place and date of banding, and place and date of recovery:

Herring gull:

320089, Wis., Jack Is., 7/18/24	Mich., Ford River, 7/13/37
386562, Mich., Huron Is., 6/29/28	Ont., Port Arthur, 9/20/36
458---, Mich., Delta Co., 7/14/26	Mich., Garden Bay, 5/27/37
458---, " " "	Mich., Frankfort, 5/24/37

(These two bands were so badly worn that the last figures could not be identified.)

565760, Mich., Snake Is., 7/9/27	Ont., Wellington, 3/?/37
706843, Mich., Mackinaw Co., 7/6/28	Mich., Huron State Park, 8/23/37

Ring-billed gull:

566156, Mich., St. Martins Shoal	
7/12/27	Mich., St. Ignace, 7/22/37

Roseate tern:

36-310858, Mass., Chatham, 7/6/36	B. G., Tuschen, West Demerare, 8/29/37
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Water-turkey:

36-719273, Miss., Glenn Allan,	
5/24/36	Mex., Cosamaloapam, V.C., 8/7/37

Double-crested cormorant:

A702630, S. Dak., Waubay Lake, 6/22/29	Minn., Hastings, 10/10/37
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Mallard:

205406, Mo., Cuivre Is., 2/23/23	Alta., Peace River, 8/15/37
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Red-shouldered hawk:

660553, Mass., Huntington, 6/14/31	Ala., Oak Hill, 12/27/36
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Prairie falcon:

34-647049, Calif., Mt. Dome, 6/6/37	Sask., Swift Current, 10/16/37
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Osprey:

A700460, N. Y., Orient, 6/20/36

Brazil, Ilheos, 8/12/37

Chimney swift:

C28078, W. Va., Charleston, 9/13/29

Ohio, Marietta, 5/20/37

Starling:

483575, Ohio, Columbus, 12/22/27

N. Y., Avon, 4/27/37

Cowbird:

37-200422, La., Avery Is., 11/14/36

Mex., Los Aldamas, N. L., 10/2/37

Red-winged blackbird:

252207, Fla., Lake Wales, 1/29/28

Fla., Mountain Lake, 4/19/37

Bronzed grackle:

712534, Mass., Auburndale, 4/22/29

Mass., Auburndale, 6/18/37

Purple martin:

B219327, Minn., Winona, 5/30/34

Brazil, Itaituba, Para, 12/?/36

Olive-backed thrush:

37-117339, Minn., Madison, 5/25/37

Alta., Vulcan, 6/17/37

Fur Resources

Obtains Information on Chinese Dog Skins.--Data collected by Frank G. Ashbrook, in charge of the Section of Fur Resources, and other persons that accompanied him in an investigation in China last summer of certain phases of the importation of dog and lamb skins, are expected to be used by the Treasury Department in an attempt to check the importation of dressed skins as raw or partly dressed. Mr. Ashbrook, Joseph R. Jackson, of New York City, assistant attorney general, and Dr. Edwin Theis, of Lehigh University, Bethlehem, Pa., were sent by the Treasury Department to China to determine whether these skins are raw, partly dressed, or dressed.

Large quantities of dog skins imported annually from China are used primarily, says Mr. Ashbrook, to trim collars and cuffs of cloth coats. The Tariff Commission specifies that these furs are dressed skins and, therefore, subject to duty. Certain importers, however, have taken exception to the duty and have recovered large sums in court actions against the Government, largely because the Government had no experts to testify in its behalf. As a result of the investigations in China, it is expected that in future cases involving these skins the Government will be able to offer expert testimony.

Mr. Ashbrook returned to this country on September 15, arriving at San Francisco, Calif., on the liner President Hoover, which was damaged by bomb fragments during hostilities at Shanghai, on August 30. He left for the Orient in July and upon arriving in Japan went to Korea and to Mukden, Manchuria. After attending to official business in Korea he proceeded by train from Mukden to Dairen and from there traveled on a Japanese boat to Shanghai. He arrived there on August 12, the same day that the Japanese artillery started bombarding the city. Mr. Ashbrook also witnessed the airplane bombing of Shanghai. On August 16, he boarded a boat tender filled with 200 refugees to board the President Taft in the Yangtze River at Woosung. The tender had to cross the fire of both Japanese and Chinese guns and was hit by shrapnel. After receiving the refugees the President Taft proceeded to Kobe, Japan, where Mr. Ashbrook boarded the President Hoover.

Yearbook Has Article on Fur Farming.--What fur farming means to the fur industry, and the steps in the growth of fur farming, together with the Bureau's connection with these developments, are discussed by Mr. Ashbrook in an article in the current issue of the Department's yearbook.

In his conclusion Mr. Ashbrook points out that little has actually been done to place fur farming on a foundation comparable with other branches of agriculture, and suggests the working out of a program to deal with research on reproductive cycles of fur animals, breeding experiments under controlled conditions, and a study of nutrition.

Fur-Trade Practices Discussed.--On October 25 and 27 Mr. Ashbrook attended the discussions on fur-trade practices, including trade names, which were held in Washington, D. C., by the Federal Trade Commission and manufacturing and retail furriers. These discussions are to be continued in New York City, where all branches of the fur industry are represented.

Addresses Biological Society.--On November 13, Mr. Ashbrook spoke before the Biological Society of Washington, D. C., on the furs of domestic animals and on his experiences in China and Japan last summer while investigating the dressing of dog skins. He illustrated his talk with fur pelts.

Collects Data on Pelt Values.--Statistics on more than 2,500 fox pups from approximately 600 matings were obtained from a large Wisconsin fox farm during October by Chas. E. Kellogg for an analysis of the effect of the whelping date on pelt values. This study is also expected to yield some information on the inheritance of silvering. Mr. Kellogg also visited several other large fox farms and at the Bad River Indian Reservation, Wis., inspected muskrat marshes and conferred with officials on the advisability of obtaining a Federal loan for undertaking a project for increasing the income from these fur animals.

Establish Field Station for Muskrat Studies.--Studies of the breeding and other habits of muskrats in the wild and under controlled conditions for developing better management methods are being conducted at a new fur-animal field station recently established by the Bureau at the Blackwater Migratory Bird Refuge, near Cambridge, Md. Dr. Herbert L. Dozier, newly appointed biologist, is in charge of the work and is being assisted by Fred W. Price, a recently appointed scientific aide. In addition to the muskrat studies, the two will study the predatory and other habits of minks to determine their relation to muskrats. Dr. Dozier was formerly with the Bureau of Entomology and Plant Quarantine and the Louisiana State Department of Agriculture. He holds a B. S. degree from the University of South Carolina, an M. S. degree from the University of Florida, and Ph. D. degree from Ohio State University. Mr. Price has studied biology at Louisiana Polytechnic Institute and has almost completed his work for a B. S. degree at George Washington University.

Norwegian Fox Breeders Visit Station.--On October 11, Dr. R. Rochmann, of Asker, Norway, director of the Norwegian Fox Breeders Experiment Station, and O. Holtan, also a fox breeder of Norway, visited the U. S. Fur Animal Experiment Station, N. Y., and conferred with Director Charles F. Bassett on the work of the station. Dr. Rochmann appeared particularly interested in the fox experiments in which soybean meal and peanut meal as substitutes for raw meat in the ration are being tested. He also visited the Section of Fur Resources on October 8 and 9. He estimates that the production of silver fox pelts will reach 300,000 in Norway this year, and 100,000 in Sweden. Several years ago before the Norwegian Experiment Station was established he visited the Bureau's station at Saratoga Springs, and conferred with the late Dr. Karl B. Hanson, who was then the director. He inspected the work under way there and obtained considerable information on fox farming.

Move into New Office Building.--Employees of the Fur Animal Experiment Station moved into their newly completed stone office building on October 20. The building contains a laboratory and provides other improved facilities for carrying on experiments and research. Grading and landscaping is under way, but there still is much to be done before this work is completed. Other improvements for developing the 16-acre experiment station are planned.

Visit Fur Animal Station.--On October 13, a representative of a commercial feed company's experiment station at Gray Summit, Mo., inspected the raised wire-floored pens and kennels at the Fur Animal Experiment Station, built last spring. He expressed the opinion that this type of kennel construction would also be satisfactory for the 30 new pens that his company plans to build next year for carrying on fox experiments. Earlier in the month he had conferred with Mr. Ashbrook and Mr. Kellogg on the fur-animal research being conducted by the Bureau.

Mr. Young, chief of the Division of Game Management, with Mrs. Young and their children, visited the station on September 2. John B. Nichols, a fox rancher at Muskegan, Mich., inspected the animals being used in experiments at the station on September 16, and a party of fur animal breeders from Rochester, N. Y., were there the same day.

Complete Second Year of Rabbit Experiment.--The second year's experiment with the production of fryer rabbits, weaned at the age of 56 days and fed from the new type of self-feeder developed at the U. S. Rabbit Experiment Station, Calif., was recently completed at the station. Although the results have not been completely summarized, indications are that the gains in weight were rapid and that a high-quality product was obtained. This experiment has attracted more attention from visitors at the station than other experiments, and many commercial rabbitries have adopted the self-feeder method. One large rabbitry in Temple City, Calif., is using the self-feeders throughout its farm.

Price Increase Benefits Rabbit Industry.--George S. Templeton, director of the Rabbit Experiment Station, reports that white fryer rabbits are being quoted at 15 to 16 cents a pound and that some producers who are marketing a superior quality of fryers receive 1 to 2 cents higher. This increase in price has benefited the rabbit industry, which a few months ago was faced with the problem of buying feed at relatively high prices. Pelt prices also have risen during recent months and are now approaching \$1 a pound.

Attends Cooperative Marketing Conference.--Director Templeton, of the Rabbit Experiment Station, attended a cooperative rabbit marketing conference at Los Angeles, Calif., on September 21. Several rabbit breeders, who are members of a poultry cooperative association, are interested in forming a cooperative rabbit marketing unit within this association. Mr. Templeton was requested to supply information on problems that might arise in marketing.

Use Domestic Rabbits in Laboratory Work.--The Florida Agricultural Experiment Station, according to a report received by Director Templeton, of the Rabbit Experiment Station, finds domestic rabbits very satisfactory for preliminary experimental work in measuring the nutritional value of various pasture grasses. Recently Mr. Templeton supplied information on the breeding and management of domestic rabbits to Prof. R. H. Means, of the Mississippi State College of Agriculture, which plans to use these animals in heredity and genetics experiments.

Rabbit Judge Visits Experiment Station.--Reed Storms, of Kansas City, Kans., a prominent rabbit judge, visited the Rabbit Experiment Station, on September 20, after judging rabbits at the Los Angeles County Fair. He appeared to be favorably impressed with the research program that is under way. George Bayliss, vice-president of the California State Rabbit Breeders Association for the northern part of the State, took some motion pictures at the station on September 25, for use at rabbit-club meetings.

4-H Club Members Visit Rabbit Station.--One hundred members of the San Bernardino, Calif., 4-H Club inspected the Rabbit Experiment Station, on the morning of October 23. Allen E. Suitor, of the station, gave a talk on the feeding, breeding, and management of rabbits and explained how the equipment at the station is used.

Disease Control

Investigates Fur Animal Losses.--Dr. J. E. Shillinger, in charge of the Section of Disease Control, left November 26 to attend the livestock and mink show at Grand Rapids, Mich., and to investigate losses on fur farms in Michigan and Wisconsin. On his way to Grand Rapids, he conferred with State conservation officials in Ohio.

Find Cause of Deer Epizootic.--On September 14 and 15, Dr. F. D. McKenney, of this Section, and Harold L. Blakey, of the Section of Wildlife Surveys, investigated a reported epizootic among deer on the Big Levels Refuge of the George Washington National Forest. Food poisoning was first suspected, but specimens examined in the Washington laboratory pointed to malignant edema. Approximately 50 deer in Virginia and West Virginia have died from this disease, according to reports received by the Bureau. On November 28, Dr. McKenney left on an extended field trip, during which he will investigate conditions involving the losses of deer in West Virginia and on the Pisgah National Forest, N. C.

Investigate Botulism.--Dr. Don R. Coburn and Dr. E. R. Quortrup, stationed at the Bear River Migratory Bird Refuge, Utah, recently investigated outbreaks of botulism among waterfowl in the Weber River delta. This has been one of the worst areas for botulism in the State, and 50 or more sick birds were sighted and several were treated at the refuge laboratory. A cooperative project with the State Fish and Game Commission for controlling the disease in this area by means of diking and flooding is under way, but no beneficial results can be expected this season.

Confers on Disease Research.--Dr. Edward L. Vail, stationed at Los Angeles, Calif., was in the Washington office during the latter part of October and early November to discuss matters relating to his research on diseases of fur animals and administrative regulations.

LAND ACQUISITION

Inspects Refuges.--Mr. Dieffenbach recently inspected refuge areas in New York, Minnesota, Iowa, and Missouri.

Personnel Reduced.--Owing to curtailment of funds it was necessary during the fiscal year greatly to limit a number of activities of this Division. A large number of field personnel appointments were terminated at the close of the annual leave and furlough periods, and those in the field who have been retained are finishing the work of optioning tracts on a number of refuges, surveying tracts on other refuge areas, and testifying in judicial proceedings. Some of the former employees have transferred to the General Land Office of the Department of Interior, the Bureau of Public Roads, and to the Bureau's Division of Migratory Waterfowl.

Complete Surveying at Elk Refuge.--Kenneth C. Kern and Oswald E. Recroft and parties have completed surveying operations on the Elk Refuge, Wyo. Mr. Recroft and Merland H. Benedict, engineering aide, are now on a short detail in the Washington office before leaving for the Montezuma Refuge, N. Y.

Personnel Notes.--George L. Ducret resumed his duties in the Surveys Section on October 2, replacing Harold R. Vogel who has transferred to the General Land Office of the Department of Interior. Bernard G. Allen, junior engineering aide, returned to the Surveys Section on November 3, and will be stationed in the Washington office. Ralph L. Conneely, draftsman, who joined the Surveys Section in August 1934, has transferred to the War Department.

MIGRATORY WATERFOWL

Emery Resigns.--Amos B. Emery, senior refuge development planner in charge of the Section of Restoration and Development since September 1935, resigned in October to resume his architect's practice in Des Moines, Iowa. P. S. Munk Pederson has been named acting in charge of the section. Mr. Emery was first employed by the Bureau in 1934 as an architect with headquarters at Des Moines. He had been employed by the National Park Service in various capacities and before developing his architect's practice in Des Moines worked several years for commercial firms as draftsman and designer. In his recent position he directed the designing and construction of headquarters and other buildings on the Bureau's refuges.

Three Refuges Established.--The Bitter Lake Migratory Waterfowl Refuge, in Chaves County, N. Mex., the Camas Migratory Waterfowl Refuge, in Jefferson County, Idaho, and the Lake Thibadeau Migratory Waterfowl Refuge, in Hill County, Mont., were established by recent Executive orders. Large numbers of ducks leave the Texas Panhandle area during periods of cold weather to concentrate on the Bitter Lake Refuge, which contains 21,869 acres. Species that use the area include the mallard, pintail, gadwall, baldpate, green-winged, blue-winged, and cinnamon teals, shoveler, redhead, canvasback, scaup, and the ruddy duck. The shoveler and blue-winged teal are known also to nest there. Among other birds that frequent the area are snow geese, avocets, and black-necked stilts.

The Camas Refuge, containing 10,992 acres, is on the Snake River migration route of waterfowl, and is also an excellent nesting place for several species of ducks, coots, shore birds, and grebes. The Lake Thibadeau Refuge, containing 3,668 acres, is to be developed under the Bureau's easement-refuge program.

By a recent Executive order approximately 5,000 acres were added to the 600-acre Willapa Harbor Migratory Bird Refuge, in Pacific County, Wash., which was established by an Executive order issued January 22, 1937.

More Sandhill Cranes at Refuge.--B. M. Hazeltine, manager of the Lake Bowdoin Migratory Waterfowl Refuge, Mont., reports that more sandhill cranes are using the Lake Bowdoin Refuge than formerly. During the spring and fall seasons of 1935 and 1936 he observed 200 to 300 of these birds there, but their stay was brief, usually not over 2 or 3 days. This year about 350 appeared on September 16. More followed from time to time and from September 26 to October 4 they numbered about 500, after which they began leaving for the South.

Bird Increases Noted on Waubay.--Watson E. Beed, manager of the Waubay Migratory Waterfowl Refuge, S. Dak., in his monthly biological report on this 2,634-acre refuge, says that in September the waterfowl population, based on careful counts, was over 100,000, exceeding all expectations. Thousands of blue-winged teals, mallards, pintails, shovelers, gadwalls, and baldpates concentrated there, with the drying up of small potholes elsewhere. Many canvasbacks, redheads, and ruddy ducks were seen, at least ten times as many as last year. "There is no doubt", he says, "that a large part of the increase of these ducks is due to our system of dikes and dams, which has deepened the water, reduced the alkalinity, and thus caused a great increase in the growth of sago pondweed and other desirable aquatic plants on which these species feed. Franklin gulls, too, were plentiful during September. Several flocks of black-bellied plovers were seen, and seven knots were observed once and carefully identified."

Wildlife Increases Reported at Malheur.--John C. Scharff, manager of the Malheur Migratory Bird Refuge, Oreg., in a report submitted on November 15, states that practically all species of shore birds at the refuge show an increase as a result of improved nesting and cover conditions. Insectivorous and other small birds also have shown a decided increase, as have beavers, muskrats, deer, and antelope. Large increases since 1934 in the numbers of most species of waterfowl are also shown in the manager's report.

Large Bird Concentration at Mud Lake.--Joe Madsen, superintendent of the C. C. C. camp at the Mud Lake Migratory Waterfowl Refuge, Minn., reports that one of the largest flights of waterfowl in this section was seen at the refuge during October, and that a census made the same month showed 200,000 birds there. Many species not previously banded at the Mud Lake station were observed.

Otters Increase on Bull Island.--Andrew H. DuPre, junior refuge manager stationed at Bull Island, S. C., reports an increasing number of otters there, the estimated total being 80, or 30 more than when the area was acquired in 1935. Raccoons and minks there, he says, have also increased substantially in numbers.

C. C. C. Camp Transferred to Bureau.--Veterans' Camp S-79, a New York State camp located near Port Byron, was transferred to the Biological Survey on October 1. During the next work period this camp will help develop the Bureau's Montezuma Migratory Bird Refuge and complete the work on the Howland Island State Refuge. W. E. Vroman, who served with this camp under the State, has been continued as its superintendent.

Visits New York Refuges.--During September P. S. Munk Pederson, construction engineer of the Section of Restoration and Development, visited the State refuge at Howland Island and the Montezuma Migratory

Bird Refuge in New York. He interviewed the personnel at the Howland Island C. C. C. camp, inspected equipment to be transferred with the camp to the Montezuma Refuge, assisted in the preparation of the tenth period work program, and attended to other details incident to the transfer of the camp. Before returning to Washington, Mr. Pederson also made final inspection of the new office building at the Fur Animal Experiment Station at Saratoga Springs, N. Y.

Visits Montezuma Refuge.--During the middle of October, L. F. Robinson, of the Section of Restoration and Development, spent 3 days at the Montezuma Refuge, inspecting the equipment and buildings. He also made a survey of the general office equipment and space, reviewing the systems for files, records, and accounts in order to recommend changes that will help in maintaining complete and efficient C. C. C. records.

Inspects Midwest Refuges.--On October 5, R. O. Gustafson, administrative assistant, left for Kansas City, Mo., where he conferred with Supervising Mechanics Stevens, Moore, and St. Hornow on the maintenance and operation of all equipment used on C. C. C. projects and also on plans for furthering the safety programs at the camps in their districts. While in Kansas City, Mr. Gustafson also attended the National Safety Council convention.

On October 15, Mr. Gustafson and Mr. Moore left for the Squaw Creek Refuge, Mo., to check the equipment there. From this refuge they went to the Swan Lake Refuge, Mo., where they were joined by W. F. Kubichek. As the Soil Conservation Service camp at Salisbury, Mo., is scheduled to be transferred to the Swan Lake Refuge, Mr. Gustafson and Mr. Moore also went to this camp to see what equipment would be transferred to the refuge. On his return to Washington, Mr. Gustafson checked the operation and maintenance of equipment at the White River Refuge, Ark.

Sick Ducks Rescued.--From Tule Lake Refuge, Calif., comes the report that C. C. C. enrollees from Camp Clear Lake have rescued and treated more than 7,000 ducks and 100 geese afflicted with botulism, and that about 75 percent of them recovered. Rescue crews have been on the job since the first outbreak of the disease during the latter part of July, and at its peak two crews with two foremen worked from early morning until after dark. Flares and other devices were used to scare the ducks away from the infected area early in the morning and in the evening. Pens were built at the refuge headquarters, and here the birds were segregated, fed, and treated and within 4 or 5 days most of them had recovered sufficiently to be able to fly again. Two thousand of the diseased birds were banded and 16 were retaken on the infected area, where they had become fatally reinfected.

Report Large Flights of Geese.--Dr. E. P. Creaser, assistant refuge manager stationed at Savannah, Ga., reports that Captain Hallman, of the U. S. Army Engineers, recently saw an unusually large flight of geese--more than 10,000 birds--in the vicinity of Sapelo and Blackbeard Islands. This

report was verified by Oscar Goodwin, laborer-patrolman on the Blackbeard Island Refuge, who added that at least 2,000 geese pass over the refuge daily at this time of year. Both men reported that in these flights there are about 10 Canada geese to every snow goose.

C. C. C. Enrollees Get Instruction.--The educational report of the C. C. C. camp at the Clear Lake Migratory Bird Refuge, Calif., indicates that a total of 1,837 hours of instruction were given camp enrollees during September. Of this number, 993 hours were for training on the job and 128 for job training during leisure hours. A total of 471 hours of instruction was given in vocational subjects, 100 in academic subjects, and 40 in miscellaneous activities.

At the graduation exercises held in September, 87 diplomas were presented in 17 courses as follows: 3 in agriculture, 4 in automobile mechanics, 28 in biology, 5 in carpentry, 3 in curing meats, 3 in English, 10 in first aid, 1 in government procedure, 1 in journalism, 11 in marine motor mechanics, 5 in permanship, 1 in trees of California, 2 in truck driving, 5 in surveying, 2 in spelling, and 2 in typing. To earn a diploma enrollees are required to attend a class regularly for a period of ten weeks and pass a final examination.

In Washington.--Carey H. Bennett, associate refuge manager with temporary headquarters at Lincoln, Nebr., conferred with officials in Washington during the week of October 25 before transferring to the office of Regional Director Laythe in Denver, Colo.

Personnel Notes.--Gilbert E. Wardwell, junior refuge manager, formerly stationed at the White River Migratory Waterfowl Refuge, Ark., has been transferred to the Crescent Lake Wildlife Refuge, Nebr., to fill the vacancy created by the resignation of Walter W. Bennett.

Miss Faxon W. Cook was appointed assistant clerk in the Section of Reconnaissance and Habitat Improvement on October 1. Miss Cook was formerly employed in the Bureau of Plant Industry.

The appointments of Norman L. Thompson as reservation protector of the Sabine Migratory Waterfowl Refuge, La., and Roy R. Ferguson as U. S. deputy game management agent on the Upper Mississippi Wildlife and Fish Refuge became effective October 16.

Milford K. Thurber was appointed clerk-stenographer on the Valentine Migratory Waterfowl Refuge, Nebr., on October 14.

GAME MANAGEMENT

Returns from Expedition and Field Inspections.--Mr. Young returned to his Washington office on November 26 after an absence beginning September 9, when he left for an expedition into the Carmen Mountains of Coahuila, Mexico. On his return to the United States October 10, he began in San Antonio, Tex., an inspection trip of big-game refuges and Survey field

offices in Texas, Colorado, New Mexico, Arizona, California, Nevada, Oregon, Idaho, and Oklahoma. En route from Pocatello, Idaho, to the Wichita Mountains Wildlife Refuge, Okla., he also conferred with Regional Director Burnie Maurek in the Survey offices in Omaha, Nebr. Mr. Young returned to Washington via Chicago, Ill., where he conferred with Tappan Gregory, Dr. Wm. H. Hazelett, and Robert Sturgis, his colleagues on the Mexican expedition, and obtained copies of photographs made by the party. During most of his trip from San Antonio to the Wichita Refuge, Mr. Young was accompanied by Howard Zahniser, of the Section of Current and Visual Information.

On November 30 Mr. Young discussed the results of his Mexican expedition at a Bureau staff meeting and showed lantern slides and motion pictures resulting from the work in the Carmen Mountains. Mr. Young was especially pleased with flash photographs of mountain lion and bobcat obtained by luring with catnip the animals to the treadles that completed an electrical circuit to flashes and camera, action photographs taken by the animals themselves. By chance three deer also set off one of the cameras one night and provided a beautiful photograph. Other subjects so photographed included the ring-tailed cat and the rabbit. Valuable scientific specimens and data were also obtained from this region previously described as a biologically unexplored "island."

Game Management Agents and Game Preserves

Dispose of Surplus Big Game.--Drought conditions and infestation by grasshoppers last summer made it necessary to dispose of greater numbers of surplus big-game animals than usual. The Survey has offered for disposal 150 buffalo, 140 elk, and 100 mule deer from the National Bison Range, Mont., 31 buffalo and 12 elk from Fort Niobrara Game Preserve, Nebr., 8 buffalo and 20 elk from Sullys Hill Game Preserve, N. Dak., and 80 buffalo and 50 elk from the Wichita Mountains Wildlife Refuge, Okla. A few Texas longhorns will also be disposed of at the Wichita Refuge. The range at the National Bison Range has been in especially bad condition. The prices asked for the animals have been reduced to facilitate disposals. As is the practice of the Survey, as many animals as possible will be disposed of alive for propagation or exhibition, and State, county, city, or municipal parks, zoos, or game preserves may obtain them for these purposes at cost of capture, crating, and transportation. Numerous requests for surplus animals are being received.

Find Companion for Lone Antelope.--Three of the four antelope captured in the Oklahoma Panhandle and transferred to the Wichita Mountains Wildlife Refuge, Okla., last June died the following month of acute dysentery. A fourth animal, a doe, also contracted the malady but survived after three weeks of care, during which she was held in a fly-tight screened pen. The animal was then transferred to the 7.61-acre coyote-proof antelope pasture east of the headquarters, but upon being released there appeared terror-stricken, plunged against the wire fence, and was shivering when the attendant returned her to the screened pen to which she had become accustomed. As the antelope had apparently become lonesome in the pasture a month-old female goat was obtained and the two put in the pasture. They became inseparable companions and appeared to be in good physical condition.

The young antelope, however, became infested with ticks, and was treated with an anti-tick solution. She died on November 11 as her vitality had been greatly weakened by these parasites. No ticks were found on the goat.

Waterfowl at Sullys Hill Preserve.--On the morning of October 10 there were approximately 5,000 ducks on the small lake in Sullys Hill Game Preserve, N. Dak., also a number of wild geese, a cormorant, some blue herons, and smaller shore birds. Wesley D. Parker, in charge of the preserve, describes this lake and its shores as "a bird paradise." He reports observing more geese frequenting it this autumn than in previous seasons. Mixed grain is scattered on the lake shore for the birds.

Porcupine Seen at Sullys Hill.--On September 23, Mr. Parker saw a porcupine on the picnic grounds of the Sullys Hill Preserve. These animals have been reported about 8 miles to the south, along the Shoyenne River, but none had previously been seen on the preserve.

Fined for Fishing on Refuge.--Two men of Carnegie, Okla., arrested on October 11, by State Game Warden L. E. Crawford on charges of fishing in Lake Rush on the Wichita Mountains Wildlife Refuge, were fined \$10 and costs, aggregating \$21 each, by a justice of peace at Lawton, Okla.

Fish Planted at Wichita Refuge.--On October 23, 64,200 fingerlings were brought to lakes on the Wichita Mountains Wildlife Refuge, Okla., from the Tishomingo Federal Hatchery, Okla., consisting of 50,000 No. 1 bream; 7,500 No. 3 large-mouthed black bass; 6,300 No. 3 green sunfish; and 400 No. 5 catfish. Employees of the Bureau of Fisheries assisted in the distribution.

Elk Arrive at Refuge.--Four elk, the first to arrive this season, appeared at the Elk Refuge, Wyo., during the week of October 17, according to Almer P. Nelson, in charge of the refuge. During the week several hundred elk also migrated out of the Teton State Game Preserve between Two-go-tee pass and the point where the highway crosses the Buffalo River, according to a State game warden. The warden said that there were about 10 inches of snow in the mountains at that time, but none had fallen in Jackson Valley.

Surplus Hay Sold to Ranchers.--A thousand tons of surplus hay at the Elk Refuge, Wyo., have been sold to nearby ranchers and 220 additional tons are being offered for sale. Six hundred tons are being shipped to the National Bison Range, Mont., for feeding the big-game animals there. The Forest Service and the National Park Service are assisting the Survey by furnishing trucks for hauling the hay to the shipping point at Victor, Idaho. Dr. Robert S. Norton, in charge of the Bison Range, expects to have the co-operation of the Indian Service and the Forest Service in handling the hay when it arrives at the range. The hay harvest at the Elk Refuge, which began on June 12, was completed on September 12. Approximately 1,642 tons, making a total of 36,506 bales, were harvested. Due to a typographical

error it was erroneously reported in a previous issue of THE SURVEY that 11,642 tons were harvested. In addition to the hay, 1,693 bushels of oats that will be used as feed for horses and seed were threshed at the Elk Refuge.

Deer Found Dead on Bison Range.--Twenty-three white-tailed deer and 11 mule deer were found dead on the National Bison Range, Mont., during September. Although the cause of death has not been definitely determined it is believed that the deer were poisoned by eating hydrocyanic acid producing plants. Scarcity of food resulting from drought and grasshoppers probably forced the animals to feed upon plants they ordinarily would not eat.

Photograph Buffalo at Refuge.--Scenes of the Wichita Mountains Wildlife Refuge, including 241 buffalo there, were photographed on October 5, by a motion picture crew of the Forest Service. Favorable weather conditions made it possible for the photographers to obtain the "shots" they desired within 2 hours.

Refuge Horse Victim of Sleeping Sickness.--A white mare at the Fort Niobrara Game Preserve, Nebr., was found dead on September 10, apparently the victim of sleeping sickness. A large number of work and saddle horses in this section died this summer and fall from this disease.

Distillery Operator Sentenced.--A six months' jail sentence was imposed on October 7 by a Federal Court at Lawton, Okla., upon a resident of Medicine Park, Okla., for operating a distillery in the Cedar Creek section of the Wichita Mountains Wildlife Refuge. The defendant, arrested by an officer of the Internal Revenue Bureau on August 16, pleaded guilty.

Visitors at Game Preserves.--Dr. Edmund Seymour, president of the American Bison Society, New York City, and his daughter, Miss Seymour, visited Sullys Hill Game Preserve, N. Dak., on September 16, and the National Bison Range, Mont., on September 19. Dr. J. E. Shillinger, in charge, Section of Disease Control, Division of Wildlife Research, inspected the Bison Range September 19 and 20. Almer P. Nelson, in charge of the Elk Refuge, Wyo., visited the Fort Niobrara Game Preserve on October 15 and 16. Visitors to the Wichita Mountains Wildlife Refuge, Okla., during October included Senator and Mrs. Elmer Thomas and parties, Charles Brill, of the Oklahoma WPA Public Relations staff; Stanley P. Young, chief, Division of Game Management; Howard Zahniser, in charge, Current and Visual Information, Division of Public Relations; and R. O. Gustafson, administrative assistant, Migratory Waterfowl Division.

Transfers.--Miss Irene E. Lafreniere, formerly with the Civil Service Commission, was transferred on October 16 to the Division of Game Management as a junior stenographer.

Geese Killed by Oil.--Game Management Agent M. H. Boone reports that early in October several geese were killed by lighting in a pond of oil near Ringling, Okla. Local residents managed to rescue 6 white-fronted geese and clean their feathers, but they died shortly after being placed in clean water.

Six other birds that could not be identified because of the oil died before they could be removed from the pond. Owners of oil ponds in this vicinity were asked to burn the oil to prevent trapping other waterfowl.

Law Enforcement

Duck Hunting Regulations Upheld.---An opinion handed down in the Federal Circuit Court of Appeals for the Seventh District on October 4 sustained the power of the Secretary of Agriculture to regulate the hunting of migratory birds, upheld the constitutionality of the Migratory Bird Treaty Act of 1918, and confirmed the fines and judgments against two Chicago hunters, who were convicted of violating the Treaty Act during the 1936 hunting season. The charge upon which they were convicted was shooting over baited ground.

This case drew much attention from Illinois duck hunters when it was heard by the United States district judge at Springfield. It was the contention of the defense attorneys that the Federal Government exceeded its powers in passing the treaty act.

In the opinion rendered the Circuit Court of Appeals admitted no doubt as to the authority of the Department of Agriculture to control waterfowl hunting, and the right of the Federal Government to step in and supersede the State authorities in the regulation of such hunting. Stressing the significance of the case to the sportsmen as well as to the public, Judge Evans said in part, in writing the opinion:

"This case is of importance, not only to hunters, but to the public at large. For if the appellants are successful in their attack, protection of game birds is impossible, and all migratory animals will either disappear or become increasingly rare.

"Appellants argue that the treaty authorized only such legislation as defined or limited the close season period for hunting and did not deal with the number of birds that might be killed in a day or how the sportsman might hunt the birds during the open season.

"In our opinion the authority to deprive the hunters of any open season carries with it the power to provide for a limited open season for limited purposes only. In other words, in a case such as we have before us, the greater power necessarily carries with it the lesser power.

"If Congress may prohibit duck and geese shooting entirely, it follows that the same authority may provide for a short open season, but limit the number of game birds a hunter may kill in a day, as well as prohibit the use of lures to attract birds to hunters' blinds and also may prescribe the guns or other instruments which the hunter may use to kill the birds.

"We are likewise persuaded. . . that Congress may lawfully legislate, under the Commerce Clause, of the Constitution, to protect the game, nongame, and insectivorous birds which migrate with the changing seasons.

"Our conclusion therefore is that the legislation was authorized by the Commerce Clause, as well as by the treaty. If we are correct in this conclusion, the asserted limitations of the treaty may well be ignored for they offer no bar to the legislation as an act whose object is to regulate interstate commerce. However, the decision is placed on both grounds."

Break Up Live Bird Traffic.---The Bureau's drive to break up illegal traffic in live wild birds is producing results, seizures already having been made in Louisiana and California. During September three persons, one charged with unlawfully shipping live cardinals, mockingbirds, orchard orioles, and painted and indigo buntings to California and the other two with shipping live painted and indigo buntings and cardinals, were arrested by a Federal game agent and arraigned before the United States commissioner at New Orleans, La. They were required to furnish \$1,000 bonds each for appearance in court. Another person in Louisiana was arrested on October 11 on a charge of possessing two live mockingbirds and one painted bunting. He posted bond for \$1,000 and informed the agent that he had been buying the birds at 15 cents each and selling them at \$1 each. One defendant charged with unlawfully shipping 58 live cardinals to California during 1935 and 1936 was fined \$100 on the first count and given a suspended sentence on the second when arraigned in Federal Court at Shreveport, La., on September 30.

Assaulted Federal Deputy.---A Federal grand jury at Sioux City, Iowa, indicted a hunter on October 21; on a charge of assaulting a Federal deputy game warden while the latter was performing his duties. The following day the defendant changed his plea in Federal Court from not guilty to nolo contendere, but was found guilty and put on probation a year. He was assessed court costs of \$22.

Hunted in Close Season.---Fines of \$50 each were imposed upon two men in Federal Court at Cape Girardeau, Mo., on October 18, when they pleaded guilty to charges of hunting wild geese in close season. The two also resisted arrest when apprehended.

In the Federal Court at St. Joseph, Mo., two defendants were sentenced to jail one day each on September 27 on charges of killing geese in close season. They had been held in jail for a period before their cases were tried. Another case involving the trapping of ducks in close season was dismissed as the defendant, according to the court, had already been punished by being held in jail 11 days before trial.

Hunter Put on Probation.---A \$100 fine was assessed in Federal Court at Billings, Mont., on October 21 against a hunter charged with hunting wild ducks without having his gun properly plugged. The fine was suspended and the defendant placed on probation for 3 years. The court, however, warned the hunter that if he was arrested again on a similar charge during his probation period he would have to pay the fine.

Transported Quail.---Two persons arrested in Alabama last January on charges of illegally transporting live quail from Mississippi were found guilty by a jury in Federal Court at Mobile on October 18. Each was fined \$100 and sentenced to jail 60 days.

Seller and Buyer of Ducks Punished.--A defendant charged with selling wild ducks and possessing canvasbacks was sentenced on September 27, in the Federal Court for the eastern district of Michigan to 60 days in jail, and the buyer of the ducks was fined \$130. Four other cases were disposed of the same day as follows: Hunting after 4 p.m. and with unplugged gun, 3 fines of \$150, \$100, and \$10 respectively, and hunting without a migratory-bird hunting stamp, one 60-day jail sentence suspended for 2 years.

Lacey Act Violation Charged.--A fur dealer at Boise, Idaho, was arrested on October 2, on a charge of illegally transporting beaver hides from Idaho to Nevada, which were later shipped to New York City. Bond for the fur dealer's appearance in court was fixed at \$1,000.

Violated Lacey Act.--A nonresident hunter charged with transporting a deer from Michigan that was killed on a resident instead of a nonresident license pleaded guilty upon arraignment in Federal Court for the northern district of Ohio on September 16, and was fined \$100 and costs of \$21.

Killed Whistling Swan.--A \$100 fine was imposed on September 14 by the Federal Court for the western district of Wisconsin on a hunter who pleaded guilty to killing a whistling swan. Another hunter who had prepared the swan for dinner was sentenced to one day in custody of the U. S. marshal.

Refuge Cases Prosecuted.--Five cases involving violations of the Upper Mississippi River Wildlife and Fish Refuge Act and recently successfully concluded in the Federal Court for the western district of Wisconsin were as follows: Trapping minks on closed area, 1 fine of \$25; trapping muskrats on closed area, 1 fine of \$50, and possessing firearms on closed area and hunting ducks, 3 fines of \$10 each.

Alleged Market Hunters Arrested.--Three alleged market hunters involved in the killing and possession of 40 mottled ducks and 27 wood ducks near Sweet Lake, La., on July 8, have been arrested, according to reports received by the Bureau. Bond for appearance in Federal Court was furnished by the three.

Aid Customs Officials.--Law enforcement agents of the Bureau in using the patrol boat Puffin along the Pacific coast have been able to help customs officials in locating contraband. As a result of this activity \$14,000 in fines have been assessed this year against persons found guilty of violating customs regulations pertaining to furs.

Killed Wood Ducks.--A hunter charged with hunting in close season and killing wood ducks pleaded guilty upon arraignment in Federal Court at Rockingham, N. C., on September 8, and was fined \$25 on one count and placed on probation two years on the other.

Illegal Hunting Costly.---Three hunters charged with killing 3 wild ducks in close season were fined \$25 and costs of \$45, or a total of \$70 each, when they pleaded guilty on October 26, in Federal Court at Peoria, Ill.

Used Live Decoys.---Two persons arraigned in Federal Court at Richmond, Va., on October 4, on charges of taking waterfowl by means of live decoys pleaded guilty and were fined \$10 each.

Hunted on Refuges.---Three persons who hunted game birds on Federal refuges were fined \$10 each on October 1, by the Federal Court for the District of Montana. Two defendants were charged with killing pheasants on the Pablo Migratory Waterfowl Refuge and the other defendant with hunting geese on the Ninepipe Migratory Waterfowl Refuge.

On November 2, three other men were arraigned in Federal Court on charges of unlawful entry and hunting on the Ninepipe Refuge. All three pleaded guilty, two receiving fines of \$10 each, and the other \$20.

Killed Sandpipers.---Two hunters charged with killing sandpipers and hunting ducks over bait and live decoys were fined \$25 each on November 1, when they pleaded guilty in Federal Court at Norfolk, Va. One of the men also hunted with a gun not properly plugged. A third hunter charged with killing sandpipers also pleaded guilty in the same court and was fined \$10.

Close-Season Hunting Brings Heavy Fine.---A hunter who killed 2 wild ducks in Donley County, Tex., on August 11, which was during the close season, was fined \$250 and placed on probation 2 years upon pleading guilty in the Federal Court at Amarillo on September 27, and received a lecture from the court. Arrest was made by Game Agent Yelton on information furnished by Deputy Game Warden Charles Smith, of Canadian.

Violators Prosecuted.---Among Migratory Bird Treaty Act cases recently prosecuted successfully in Federal Courts were the following:

In Massachusetts, hunting ducks with unplugged gun and without duck stamp, \$20 fine; in Missouri, hunting geese in close season, \$25 fine; in Montana, hunting ducks with unplugged gun, 1 day in jail; in New York, hunting waterfowl with unplugged gun and without duck stamp, \$50, and killing ducks from sinkbox, sentence suspended with probation for 30 days.

Three cases in Florida involving possession of sanderlings and yellowlegs were closed with fines, as were two cases of possessing a meadowlark and two of possessing a grebe. In Louisiana one case each of killing a thrush and a woodpecker, killing a robin, and possessing wood ducks, a robin, and a thrush, were closed with fines.

Three Hunters Draw Fines.---Three persons, two charged with killing ducks and the other with hunting ducks in close season, pleaded guilty on November 8 in Federal Court at Fort Dodge, Iowa. Fines of \$10 and costs of \$22.85 each were assessed against the first two, and \$10 and costs of \$30.60 against the third.

Used 40 Live Decoys.--Six persons were arrested by Federal agents on November 7, in Skagit County, Wash., on charges of hunting waterfowl with 40 live decoys. Upon arraignment in a State court they pleaded guilty and were fined \$100 and \$2 costs each.

Exceeded Dove Bag Limit.--A hunter charged with killing doves in excess of the daily bag limit was fined \$20 on November 12, in Federal Court, at Sacramento, Calif.

Importations

Birds Seized.--Attempted importation by a tourist of an indigo bunting and a painted bunting as "blue finches from South America" was recently reported by B. S. Bowdish, the Bureau's inspector of foreign birds and mammals at the port of New York City. Importation of these birds is prohibited, except for scientific purposes. After being seized they were donated to the Philadelphia Zoological Park.

Failed to Have Importation Permits.--The recent landing of two monkeys and two canaries without importation permits at Moorhead City, N. C., by members of the crew of the Mari, was reported by the Bureau of Customs. Upon advice from the customs officials the purchasers of the birds and animals returned them to the ship, which left for Scotland. Fines were assessed and collected on two separate charges.

Predator and Rodent Control

Attends Convention in Memphis.--D. D. Green, of this section, attended the convention of the National Pest Control Association at Memphis, Tenn., on October 25 to 27, and spoke on the Bureau's objectives in rat control. Methods of rat and mouse control, he said, were discussed in considerable detail at the convention's control clinic.

District Agents G. C. Oderkirk, R. B. Deen, and G. B. Lay also attended and conferred with Mr. Green on rodent problems in their districts. Before returning to Washington, Mr. Green inspected pocket-gopher and rat control projects in Regions 5 and 7.

Sets Predator Catch Record.--District Agent Roy Fugate, of the Oregon district, reports that during September Hunter Robert E. Long set a new monthly record of predators taken by Bureau hunters by trapping 244 coyotes and 12 bobcats, or a total of 256 animals. He used 400 traps on his 400-mile trap line, which he covered by automobile.

A total of 212 predators were taken during the same month by Hunter Glenn Sutton, according to District Agent W. E. Riter, of the Colorado District. Hunter Sam J. Harmon accounted for 146, reports District Agent R. Scott Zimmerman, of the Utah district, and 130 were taken by Hunter Nort Hulery, according to District Agent George E. Holman, of the Nevada District. The foregoing catches are considered outstanding for the territories in which the hunters worked.

Control Rats in Federal Buildings.---Frank N. Jarvis, of this section, recently conducted a rat-control campaign on the lower floors of the Capitol building in Washington in order to eliminate the rodents there before the opening of Congress on November 15. The Capitol was recently added to the list of Government buildings in Washington in which the control of rats is directed by the Bureau.

Beavers Transferred.---Some of the surplus beavers in northern Idaho have been transferred to the cooperative water-conservation projects in southern Idaho to prevent soil erosion and help regulate the flow of water in streams, reports T. B. Murray, district agent of Idaho. In States where these animals are protected they have increased in number rapidly. By live-trapping, the surplus numbers can be transferred to areas where their dam-building activities will be useful.

Organizes Control Projects in Alaska.---District Agent Harlan H. Gubser left his headquarters at Juneau, Alaska, early in July for the Alaskan interior and by the end of September had conferred with private trappers in the Seward, Anchorage, Fairbanks, and Kotzebue districts on plans for controlling wolves and coyotes. On this trip he also organized control projects that are to be conducted in cooperation with the Civilian Conservation Corps. Arrangements have been completed with the Forest Service for the use of its newly constructed building 7 miles from Juneau as a station for preparing and bottling predatory-animal scent baits, and a large quantity of bait has already been prepared for the use of the trappers. Special traps also have been made available to trappers on a cost basis.

Halt Damage from Rats.---Cooperative rat control in Galveston, Tex., this year has produced good results, reports District Agent C. R. Landon. Only two sacks of flour out of 84,000 stored on one pier of the Galveston Wharf Company were found damaged this year as compared with 50 percent of the sacks being damaged in some cases before control measures were begun. The City of Galveston appropriated \$500 for supplies and the city health department assigned an inspector to assist the Bureau. The wharf property, where losses from rats have been greatly reduced, is two to three blocks wide and extends along the waterfront.

Predator-Control Staff Enlarged.---District Agent Landon reports the predator-control staff in Texas has been increased to 122 men. This is the largest number ever employed in that State and is made possible by demands for control work in south and northwest Texas and an increase in State funds of $33\frac{1}{3}$ percent. Since July 1, organized control work has been instituted in a number of new counties, among them Presidio and McAllen, in which four trappers each are employed.

Rodent-Control Appropriation Increased.--District Agent Landon reports that in addition to the regular State appropriation of \$23,650 for general rodent control work in Texas the legislature at its last session also designated an appropriation of \$12,000 for the control of pocket gophers in 13 counties in the extreme northeastern part of the State. Joe B. Lindsay is handling this project, and control of the pocket gophers in this section is expected to be effected within two years. Poisoned maize is being used as bait as it has been found more effective than poisoned sweetpotatoes.

Cooperative Funds Continued.--District Agent Landon reports that Pecos and Webb Counties in Texas have again provided cooperative funds of \$3,500 and \$3,312, respectively, for predator control during the coming year. He adds that McMullen County also has appropriated \$2,649.60, which is considerably larger than previous appropriations.

\$4,000 Appropriated for Pocket-Gopher Control.--District Agent John C. Gatlin, of the New Mexico district, reports that \$4,000 in cooperative funds has been appropriated by the Elephant Butte irrigation district for pocket-gopher control in the Rincon and Mesilla Valleys in Dona Ana County, N. Mex., for the calendar year 1938.

Move into New Quarters.--The San Antonio, Tex., office of District Agent Landon has been moved from the Smith-Young Tower to room 298, New Federal Building.

Wolf Control Resumed.--Cooperative wolf control was resumed this fall in Boone County, Ark. County officials set aside \$150 for the work, which had been discontinued for several years.

Transfers to Forest Service.--Floyd W. Dawson, formerly junior district agent in the Texas district, transferred on September 1, to the Forest Service with temporary headquarters at Childress, Tex. He is a junior biologist in the State director's office of the Farm Forestry Project in Texas and is continuing his technical work under the direction of District Agent Landon.

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